JUNE 1953
In Two Parts — Part I

News Magazine of the American Standards Association, Incorporated

WILL THIS FABRIC WASH?

New Standards Give the Answer

Some rayon and acetate fabrics can be washed; others must be dry cleaned. American Standards now specify minimum requirements for rayon and acetate used for different purposes. Tests give information needed to assure proper care.

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Company Members—More than 2300 companies hold membership either directly or by group arrangement through their respective trade associations.

Marginal Notes

What to Look for in the July Issue—

During this past month a number of important meetings on standardization have been held. The Company Member Conference visited the Wright Field Air Base in Dayton, Ohio, May 25-26. There they were shown how the Base carries out its civil defense functions and how it applies standardization procedures in purchasing and handling its supplies and materials. CMC's visit will be described, with pictures, in the July issue.

In California, a group of ASA members and others interested in standardization discussed the national program in the first meeting of its kind in that section. Following that meeting ASA's president, Roger E. Gay, presented a talk on standardization before an audience of some 2,000 attending the annual convention of the National Association of Purchasing Agents. The convention was held at the Hotel Statler, May 25-27. The purchasing agents saw important new developments in the country's economic scene. Their views will be reported next month.

John A. Dickinson, National Bureau of Standards scientist, is presenting an interesting discussion of the effects of lightning and how to guard against its dangers. Mr Dickinson is chairman of the ASA Sectional Committee on the Safety Code for Protection Against Lightning.

Important International Developments—

In this issue both Canada and the United Kingdom report changes in their standardization operations. Canada's change concerns a new constitutional and administrative setup (page 180). The British changes have to do with the increasing importance of standardization in that country and refer to enlarged facilities for the British Standards Institution (page 179). The British are paying close attention to U.S. thinking on standardization, as witnessed by the reprinting of articles and speeches in USA publications (page 179).

A number of important international meetings are scheduled for June and July. One of these is the annual meeting of the International Electrotechnical Commission in Opatija, Yugoslavia. USA will be well represented with 15 representatives. The U.S. delegation is headed by R. C. Sogge, Manager of Standards Services Department, General Electric Company, Schenectady. Mr Sogge is president of the United States National Committee of IEC. J. W. McNair, Electrical Engineer, ASA staff, and secretary of the U.S. National Committee, is attending the conference as secretary of the delegation.

Dr H. S. Osborne is president of the International Electrotechnical Commission. He will preside at the Opatija conference.

Research Reflected in New Standards—

ASA is frequently asked if it operates laboratories for testing in accordance with standards or for carrying out research leading to the development of standards. The answer, of course, is "no." However, laboratory research frequently plays an important role in determining the standard specifications and methods of test that are approved as American Standard. Mr Thomas H. Wiggins, who has been a leader in cast-iron pipe standardization since the 1920's, describes the research background for a series of new American Standards on cast-iron pipe just approved (see page 168 in this issue).

A different type of study is represented in the article on page 174. This is a tabulation of toxic materials that gives data to help in applying the American Standard Safety Code for Exhaust Systems. Although this study has not been reviewed or approved by the sectional committee on exhaust systems, it is presented here because we believe it gives data that will be interesting to many ASA member companies.

Our Cover Photo Courtesy of Celanese Corporation of America.

Opinions expressed by authors in STANDARDIZATION *are not necessarily those of the American Standards Association.*

Standardization

Formerly Industrial Standardization

ASA

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In Two Parts—Part 1

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Part 2—American Standards Price List, June 1953

Standardization is dynamic, not static. It means not to stand still, but to move forward together.

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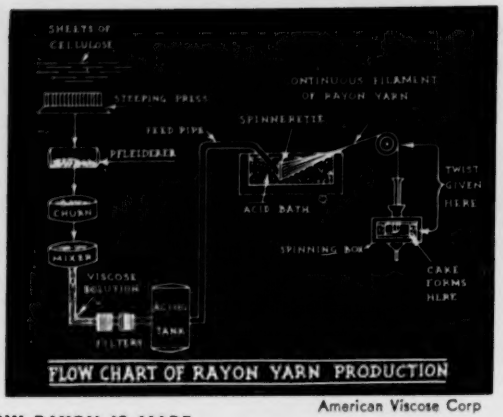
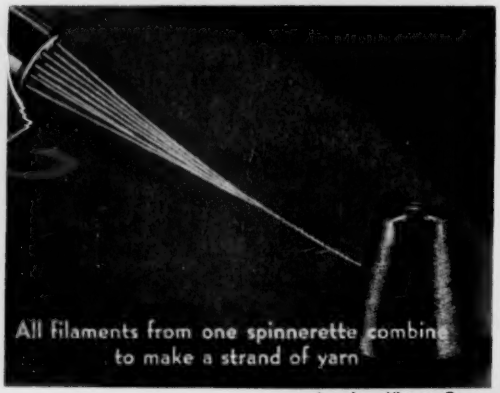


American Viscose Corp

HOW RAYON IS MADE

Cellulose, the solid part of cell walls of plant life, is the raw material from which rayon is made. This solid is dissolved into a liquid, then hardened back into a solid in the form of filaments—textile fibers. The raw stock is cooked into pulp, squeezed, and pressed into sheets. Through a steeping process, shredding in a "pfleiderer," churning, and mixing, it becomes a gluelike liquid. After filtering and aging, the solution is forced into the feed pipe, through the holes in a spinnerette, and into an acid bath. Action of the acid hardens the fine streams of liquid into solid filaments. These filaments are drawn over a revolving wheel and down into a rapidly revolving spinning box where they are twisted into a single rayon yarn.

The spinerette, heart of the process of chemically spinning a liquid into rayon yarn, contains a number of fine holes, from two to five one-thousandths of an inch in diameter. Number of holes in a given spinnerette determines number of filaments in finished yarn.



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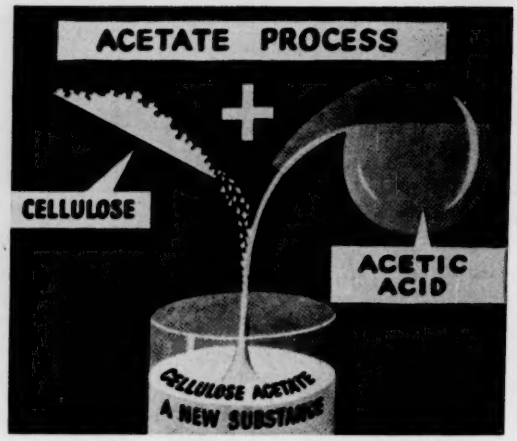


Celanese Corp of America

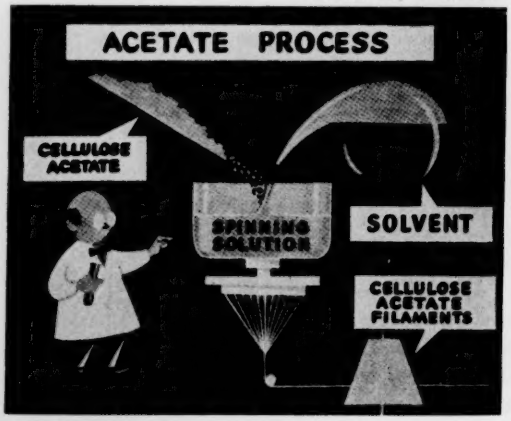
HOW ACETATE IS MADE

Acetate, too, starts with purified cellulose. This is combined with other chemicals to make cellulose acetate, a chemically different substance.

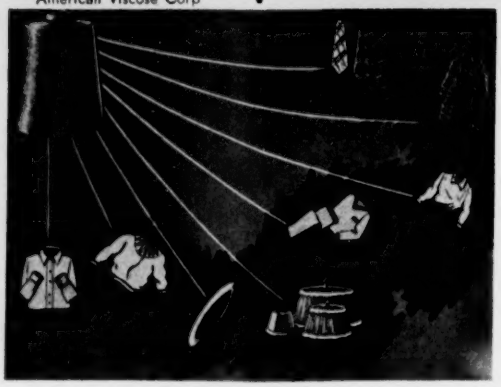
This compound is combined with a solvent, is dissolved and run through a spinning solution. It is then forced through fine holes into warm air. The warm air evaporates the solvent and leaves filaments of cellulose acetate (see below). These filaments are spun together to form single strands of yarn. This yarn is soft, and has a pleasant feel.

Acetate and rayon are different chemical products. They are frequently combined in fabrics.

Celanese Corp of America



KEY STEPS IN PRODUCING RAYON AND ACETATE FABRICS



USES OF RAYON AND ACETATE

The highly complex process —solid to liquid to solid—produces rayon yarns that are either woven or knit into many different types of fabrics. Viscose yarns, especially treated, are used for tire cord fabrics, and rayon yarns are used for sturdy fabrics for household use. Both rayon and acetate yarns are used in the manufacture of fabrics for clothing.

American Viscose Corp

How to Check Rayon and Acetate Fabrics or Garments

RAYON and acetate fabrics used in the clothing or household articles you buy are now the subject of American Standard performance requirements. Just as in the case of fluorescent lamps, track bolts and nuts, or the film you use in your camera, these standard requirements have been agreed upon after long consideration on the part of the different groups concerned. They have been spelled out in detail and put down in standards approved and published by the American Standards Association. And test methods have been agreed upon to check whether a piece of fabric or a garment will perform in accordance with these standards.

Any fabric you buy that contains more than 50 percent of rayon or acetate, or both, whether alone or in combination with other fibers, is covered by one of these American Standards. This represents some 17 percent of the annual production of all textiles. Fifty-one different end-uses are covered—including women's and girls' underwear, suits, raincoats, umbrellas, and handkerchiefs; curtains, table linens, and blankets.

Different performance characteristics have been assigned to fabrics used for different purposes.

For example, the fabric used in your wife's woven suit should have bursting strength of 50 lb when dry, 25 lb when wet, but your knitted bathing suit should have a breaking strength of 50 lb when wet. A woven window curtain, on the other hand, need only have a breaking strength when wet of 8 lb.

Some of the types of rayon and acetate fabrics that may be used for your wife's suit will be washable by ordinary home or commercial methods (160 F). Others should be washed only at "hand temperature" (105 F). Some will only meet the standard requirements if they are dry cleaned. For each type of fabric suitable tests are provided. When

Du Pont Co

At left—Used in this man's suit is a blend of 75 percent rayon and 25 percent "orlon." American Standard Minimum Requirements for Rayon and Acetate Fabrics apply to fabrics using 50 percent or more rayon and acetate in combination with any other fiber.

Below—Acetate-tropical suiting fabric is made up in this woman's summer suit.

Celanese Corp of America

tested, the fabrics used in your wife's woven suit must meet requirements for shrinkage as well as colorfastness to atmospheric fading, perspiration, laundering or dry cleaning, and sunlight. They must not lose their finish in the cleaning and laundering tests.

As for your bathing suit, it need not meet the more stringent requirements that would permit laundering in the hot water used in commerical or ordinary home laundering; it is satisfactory if it can be washed at hand temperature. It must rate as Class 3 (or Good) in colorfast resistance to atmospheric fading; and Class 3 in colorfastness to sunlight. It must also, however, meet tests for reaction to chlorinated pool water, to fresh water, and to sea water.

Because of their day-by-day exposure to daylight, the woven window curtains mentioned above must meet more exacting tests for exposure to sunlight than fabrics used in women's suits and in bathing suits. They must show no appreciable loss of color after 60 hours' exposure in a Fade-Ometer (a machine for accelerated fading), whereas only 20 hours are required for the suit and 40 hours for the bathing suit. These window curtains are to be washable, either at hand temperature or by ordinary commercial methods. Of course, any of these fabrics may be dry-cleaned.

The types of fabrics used in the products selected as examples here are not permitted to lose more than

Gordon Creighton
Formerly Assistant General Manager, NRDGA; took lead in L22 work as the Committee's first Vice-Chairman

Jay D. Runkle
Vice-President and General Manager, Crowley-Milner Co, Detroit, L22 Chairman

2 percent in "dimensional restorability." Woven household blankets, on the other hand, may shrink 8 percent.

These are only a few samples of the different requirements developed for the 51 different end-uses covered. Many more examples could be cited —the special requirements for raincoats and umbrellas, for shoe fabrics, and embroidery threads, among many others.

What will these standards mean to you as a user of these rayon and acetate fabrics?

They will be a guide to the retailer who wants to be sure that you, his customer, will be satisfied with the service you get from the rayon or acetate articles you buy from him. If he wishes, he can pass along the information to you by means of a tag and a sewed-in label that tells you that the product you buy meets the requirements of an American Standard. This tag and label would also give you instructions for taking care of the fabric and the finished garment. Samples of tags or labels that can be used are included in the introduction to the American Standard Minimum Requirements for Rayon and Acetate Fabrics.

A label with green bands indicates that the article is washable by regular commercial or home laundry methods, at temperatures not exceeding 160 F.

A yellow band indicates that the article should be washed at hand temperature (not hotter than 105 F).

A red band indicates that the article must be dry cleaned.

For piece goods, which should carry an identification on the selvage, as well as for garments or other articles which should carry a tag, the identification should show the number of the American Standard to which the fabric conforms.

Undoubtedly, the interest shown by their consumers will guide both retailers and manufacturers in determining how far they will go in labeling the fabrics and garments that are sold in retail stores. Any group that wishes to do so is encouraged to identify its products for its consumers' benefit. It may certify that its products conform to these standards through various procedures. If it wishes to have the certification carried out in accordance with the certification rules of the American Standards Association, it may ask ASA for authorization to do so.

Reports indicate that it would be a service to all concerned if this information were made available to the consumer. Over a 12-year period complaints about rayon and acetate fabrics accounted for more than 40 percent of the 10,000 customer complaints referred to the Mellon Institute by only one department store in the Pittsburgh area.

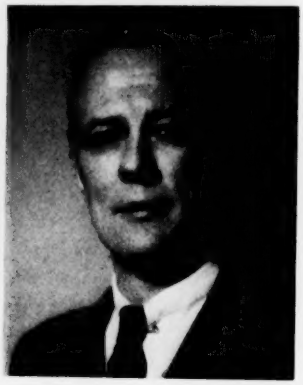
Many complaints, of course, never reach the stores at all. The dry cleaner or launderer can bear witness to the fact that he is frequently made the victim for damage to a garment that has occurred through no fault of his.

It is not only the customer, retailer, launderer, and dry cleaner who need the information contained in these standards. A bolt of fabric or a garment made from it passes through many independent manufacturers and distributors before it reaches you—the customer. There is first the producer of the raw material, then the spinner, the weaver, the dyer, the converter (or finisher), the garment manufacturer, and the retailer.

The new American Standards give all these groups a common base of understanding. On this basis they can talk the same language in agreeing on what is needed to give you, a fabric user, satisfactory products.

A sectional committee sponsored by the National Retail Dry Goods Association developed the standards. NRDGA has a membership of some 8,000 retail stores. Its Board of Directors has from the beginning encouraged the committee's work and voted for approval of these standards.

Henry G. Leef
Woodward & Lothrop, Washington, D. C., L22 Vice-Chairman



George G. Sommaripa
American Standards Association, Secretary, Committee L22

WEARING APPAREL

(WOMEN'S and GIRLS' — MEN'S and BOYS')

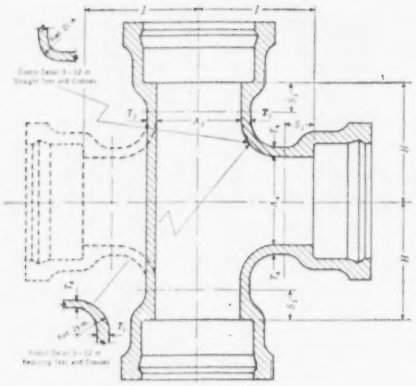
AND

HOME FURNISHING FABRICS

PROVISIONS FOR COLORFASTNESS AND OTHER CHARACTERISTICS OF END-USES IN AMERICAN STANDARDS FOR RAYON AND ACETATE FABRICS L22

	CHARACTERISTICS OR TREATMENTS:	STANDARD REQUIREMENTS:	RESULTS YOU MAY EXPECT FROM TEXTILES MEETING L22 REQUIREMENTS
	ATMOSPHERIC FADING	Class 3	No appreciable change in color
LAUNDERING	WASHABLE (160 F)	Class 3	Normal commercial or home laundering—no boiling—no chlorine—dry out of direct sunlight. No appreciable change in color nor staining of adjacent whites.
LAUNDERING	WASH AT HAND TEMPERATURE (105 F)	Class 1	Launderable only under very careful conditions—lukewarm temperature—no chlorine—no alkali—dry out of direct sunlight. No appreciable change in color nor staining of adjacent whites.
	DRY CLEANABLE (dry and wet)	Class 4	Will show no appreciable change in color after dry cleaning.
	CROCKING (rubbing off dyes) (dry and wet)	Class 3	May show slight discoloration of white or light-colored fabrics with which they come in contact, but this discoloration is removable with soap and water.
	PERSPIRATION	Class 5	Colors virtually unchanged.
	PRESSING (dry and wet)	Class 2	No change in color.
	SUNLIGHT	Class 3	Good fastness to sunlight. No appreciable change in color.
		Class 2	Moderate fastness to sunlight. (About one-half of Class 3 performance.)
		Class 1	Little fastness to sunlight. (About one-quarter of Class 3 performance.)
	FLAMMABILITY	Class 1	Normal Flammability—no unusual burning characteristics.
	PERMANENCY OF FINISH		Permanency of finish measures the desirable properties such as, crispness, texture, etc after consecutive cleanings or washings. A fabric must not change substantially in hand, color, or character, or lose more than 3% of its weight as a result of finish loss, except home-furnishings which have 5% allowance.
	SPECIAL CHARACTERISTICS		
	CHLORINATED POOL, SEA AND FRESH WATER		No appreciable staining.
	RAINWEAR		Resistance to showers.

Additional Requirements: In general textiles should not shrink more than 2½% — for shirts, 2%. However, for handkerchiefs and brassière's the allowable shrinkage is 5%. Dimensional Restorability allowance is 2%; it measures the ease with which the fabric can be restored to its original dimensions when a restoring force is applied, such as in ironing. Breaking and Bursting strengths measure resistance to breaking or rupturing of a fabric. Other special characteristics are also specified to assure satisfactory performance.



Through Research to Standards on Cast-Iron Pipe

by Thomas H. Wiggin

A BROAD program of research has gone into the development of nine American Standards for cast-iron pipe approved during the past year. Since 1926 studies carried on under the auspices of Sectional Committee A21 have given data on reasons for failure of cast-iron pipe, on methods of preventing corrosion, and on how to determine the thickness of pipe needed to carry the load to which it will be subjected. These data are now translated into specifications for practical application by manufacturers and users.

The new standards are the culmination of a program that has been under way for a long period of time.

Over the years between 1908 and 1926, with some interludes, the American Water Works Association had had (and in 1926 still had) a committee charged with the duty of developing improved specifications for cast-iron pipe. The methods of testing the quality of the product were not satisfactory, however, and there was no factual basis on which to found improvements to the specifications. For this reason no progress had been made.

In 1926, certain far-seeing water and gas engineers and officials of the producers met to discuss possible organization of a committee with a broader membership to look into the problem of cast-iron pipe specifications. A sectional committee set up under the procedure of the American Standards Association was proposed to provide the broad representation of manufacturers, users, and general interest organizations needed to do the job.

One of the water engineers happened to have nearly a year's experience at pipe foundries. He was willing to become chairman of a sectional committee, provided there was to be money for research on the effect of trench earth pressure combined with internal water pressure, and on a number of other problems.

The desirability of having new facts and not merely "threshing over old straw" was recognized by all the gathering. The producers instantly agreed to supply a fund reckoned as 25 cents per ton on the total cast-iron pipe production in the previous year. Sectional committee A21 of about 35 consumers, producers, and general interest persons was soon organized under the auspices of the American Standards Association. Sponsors were the American Gas Association, American Society for Testing Materials, American Water Works Association, and New England Water Works Association. All of these sponsors have given hearty support to the committee, including considerable donations of money. The AWWA has done the printing of specifications for water pipe, and the American Gas Association has printed those for gas pipe, a very considerable task in both cases.

Mr Wiggin is Consulting Engineer for the Federal Water Service Corporation of New York. He has been chairman of Sectional Committee A21 on Cast Iron Pipe since 1929, representing the American Water Works Association on the committee.

Organization and Regulations. The regulations of the sectional committee vested executive and financial control in an Executive Committee of 11 persons, including chairman, vice-chairman, secretary and treasurer, as ex-officio members. They were elected by the whole committee but chosen from the several classes of membership in approximate balance.

The Executive Committee has editorial powers but no power to change the meaning of specifications as produced by various subcommittees. The technical provisions can be passed on finally only by the full sectional committee at a meeting of which advance notice must be given. This notice must include the fact that the particular specification is to be discussed. If, then, the sectional committee authorizes a letter ballot, the specification is in line for final approval by that ballot, but the reasons for negative ballots or ballots not sent in must also be sought and reported.

Questionnaire. One of the first activities of the committee was to circulate a questionnaire among users of cast-iron pipe. Main purpose of this questionnaire was to obtain a mass of data on failures of cast-iron pipe and their causes. It should be said, however, that the more important data were obtained directly from committee members.

Tests of Corrosion of Cast-Iron. Expenditures did not stop with the initial fund supplied by the producers. Additional funds in the amount of about $10,000 were provided, mostly by the producers, for an investigation of the possibility

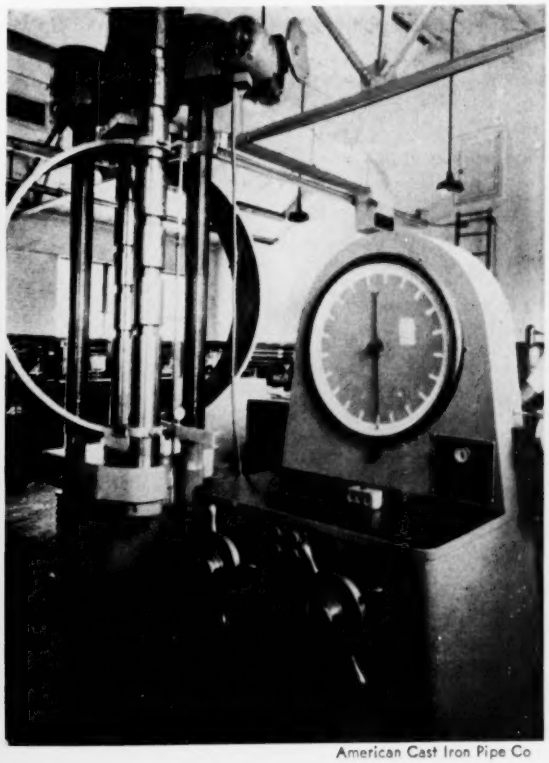
of limiting corrosion by changes in composition of the metal. Experiments at the Massachusetts Institute of Technology proved to the committee's satisfaction that only a large percentage of nickel would materially change the corrodibility of cast-iron. This, however, would add an impracticably large percentage to the cost and produce iron that could not be machined, cut, and tapped in the manner required. The conclusion was inescapable that a protective coating inside and often one outside were needed.

The producers also greatly extended their individual technical experimental work and observations. Also, through their Cast Iron Pipe Research Association and Cast Iron Pressure Pipe Institute, they cooperated in making a complete series of tests that resulted in the American Standard Specifications for Short Body Fittings, A21.10-1952. They also made many tests of coatings and linings, and of large fittings. They went into the mathematics of earth trench loads, and made detailed computations carrying out Iowa State College's methods adopted by the committee for determining thicknesses of pipe.

Trench Load Tests. The most urgent problem had been recognized by the committee's founders to be the effect of combined earth loads and internal water pressure. The earliest efforts were therefore devoted to this problem. Iowa State College, for many years previous to the formation of Committee A21, had specialized in full-scale field experiments on earth loads on sewer and culvert pipe. A contract was made by the committee with Iowa State College to extend these experiments to cast-iron pipe under both earth and water pressures. Pipe for experiments was supplied in part by the producers and in part by certain water departments.

Bursting and Crushing Tests. The University of Illinois Engineering Experiment Station had done considerable research work on the bursting, beam, and shock strength of 6-inch cast-iron pipe. The University was engaged by Committee A21 to extend these tests in order to obtain bursting, crushing of the barrel, and other strength and deflection characteristics of the pipe and their relation to strengths shown by strips about 12 inches long, milled longitudinally from the barrel of the pipe. These strips were generally milled from the neutral points of full rings cut from pipe and used for determining crushing strength. These two tests—crushing of rings, and beam tests of longitudinal strips—are provided for in the specifications. In addition, there are provisions for periodic and special full-length bursting tests in connection with crushing tests of rings. This is due to the fact that the whole determination of necessary thickness to resist combined earth loads and water pressure is based on these two characteristics of pipe—full length bursting pressure without earth load, and ring crushing strength without water pressure. Separately cast test bars are also provided for certain cases.

Iowa State College Formula Adopted for Combined Bursting and Earth Loads. Iowa State College produced the formula finally

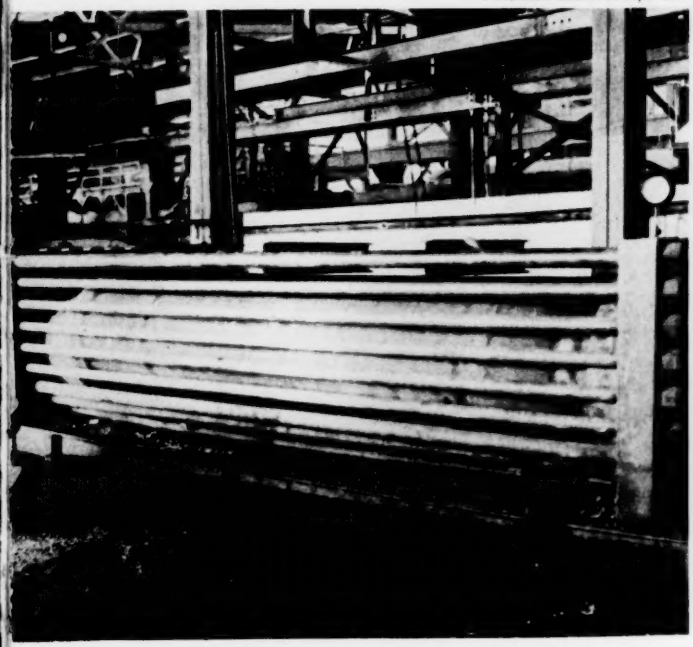


American Cast Iron Pipe Co

Ring compression tests made on this machine give data for use in determining thickness of pipe.

Full-length bursting tests, called for in the standards, are carried out on this hydraulic burst-test machine.

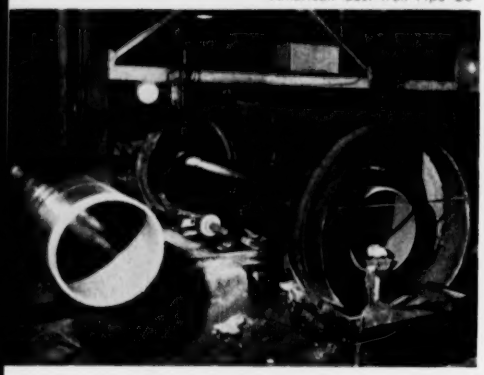
American Cast Iron Pipe Co



adopted by the committee in computing pipe thicknesses under combined earth pressure and internal water pressure. Since the effect of earth pressure depends greatly on the method of support of pipe and the method of backfilling the trench, the copious thickness tables of the specifications provide for six methods of combined support and backfilling. The main tables recommended for general use, however, are based on support on the earth along the full length of the pipe and tamping the backfilling under the haunches and to somewhat above the horizontal diameter. A full explanation of the committee's method of computing thicknesses of pipe is given in the "Manual" (American Standard Manual for the Computation of Strength and Thickness of Cast-Iron Pipe, A21.1-1939). The Manual is about to be brought up to date to include data and thickness tables for centrifugally cast pipe as well as the material on pit cast pipe contained in the 1939 edition.

Cement mortar lining is recognized as standard method of protecting cast-iron pipe against corrosion.

American Cast Iron Pipe Co



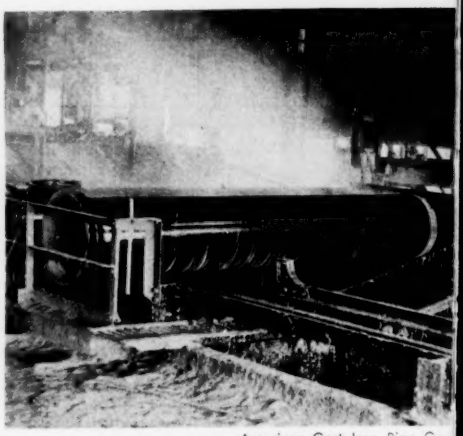
Hydraulic Friction Losses in Fittings and Influence of Shape and Transition at Junctions Thereon. Another experimental project of Committee A21 was the determination of hydraulic losses of head in 6-inch and 12-inch ¼ bends and ⅛ bends, also in 6-inch and 12-inch tees and crosses with water flowing through them in various ways and proportions. Tees and crosses with intersections unrounded and rounded with 2½-inch and with 6-inch radius were included in these tests made for the committee at Cornell University. The short body fitting standard, A21.10, received the benefit of these tests in the choice of a 2½-inch radius at the junctions in tees and crosses.

Protection of Cast-Iron Pipe Against Corrosion. Committee A21 had from the start an active subcommittee of research to find the most effective and durable materials and application methods for protecting cast-iron water pipe. Particular attention was paid to the protection of the interior of pipe, as the tar dip then and for many years in common use, was known to permit rapid reduction in carrying capacity of the pipe, particularly with soft waters. As carrying capacity is the purpose of pipe, this question touched the heart of pipe value. The subcommittee was able to add to its membership several of the most experienced experts both in bituminous and in cement mortar protection. The producers of cast-iron pipe aided greatly in experimental work and observations.

A tar dip specification, A21.5, was produced but not adopted by the sponsors. More important, a specification for cement mortar lining was adopted, A21.4-1939 and has been revised as A21.4-1953. No attempt was made to cover the field of tar enamels, this having been thoroughly covered by the American Water Works Association's committee on steel pipe.

Pull-out Strength of Lead Joints. Committee A21 cooperated with the Columbus (Ohio) Department of Water in tests made at Ohio State University to determine the pull-out strength of lead joints.

Remaining Task. One important task remains for Committee A21. This is to recommend dimensions, thicknesses, and pressure ratings for fittings over 12 inches in diameter. Many tests to destruction have been made by the producers but World War II prevented completion of this work and delayed drawing conclusions from it. De-



American Cast Iron Pipe Co

Here, hot tar is being brushed over outside surface of mono-cast pipe to be enamelined. Tar enamels are covered by AWWA committee.

fense activities have prevented resumption of the program. Tees and crosses with main pipe and branch of the same or nearly the same diameter are known to be weaker in bursting than has been supposed. Also, Y-branches are known to be weaker. Doubts concerning the strength of short-body fittings (A21.10) have been eliminated by appropriate thickening, but similar uncertainties in the area of larger fittings remain to be resolved.

It may seem that Committee A21 has taken a long time to produce this last and most important group of specifications. However, the method of computing thicknesses of the barrel of the pipe under combined trench loads and internal water pressure, evolved by the committee and explained in the Manual, A21.1-1939, has only had wide use since about 1937. The producers of cast-iron pipe and fittings have also greatly extended their experimental work and laboratory control.

The following specifications produced by Sectional Committee A21 have recently become American Standard:

Cast Iron Pit Cast Pipe for Water or Other Liquids (Revision of A21.2-1939), A21.2-1953

Cast Iron Pit Cast Pipe for Gas, A21.3-1953

Cement Mortar Lining for Cast Iron Pipe and Fittings (Revision of A21.4-1939), A21.4-1953

Cast Iron Pipe Centrifugally Cast in

(*Continued on page* 184)

Standardization in the Machine Tool Industry

by TELL BERNA

General Manager, National Machine Tool Builders' Association

FOR many years, machine tool builders have been vitally interested in standards. The list of American Standards already adopted in this field is to be found under "B—Mechanical Engineering" in the price list of American Standards (part 2 of this issue). They are mostly included among those standards whose numbers start with the designation B5. Other standards in that list—such as B1.1-1949, Unified and American Screw Threads for Screws, Bolts, Nuts, and other Threaded Parts — are of equal importance, and there are many of them.

It is a little late in the day to spend time arguing the value of standards in our industry. Yet it is unfortunately a thing that can never be accurately appraised, or summarized in a neat statement. Some of us can still remember when electrical control equipment was assembled with studs and cap screws with special pitch threads, so that the customer had to get his replacement parts from the original builder, but that was long ago, and no one defends that policy today.

The latest standard in our field is perhaps typical. It is B5.10-1953, Machine Tapers — Self-holding and Steep Taper Series. This is a revision of an earlier standard. It makes it possible to use the same arbor on milling machines of various makes. It ensures that a taper shank cutting tool of any make can be used in a machine tool of any make. It illustrates the basis of most of these standards—to reduce the investment in accessory equipment and tools in the user's plant. The same motive led to such standards as those on T-slots, forming tool blanks, chucks and chuck jaws for turret lathes, and many others. The aggregate value of such standards is beyond computation. It arises not merely from the reduction in the investment required to operate a metalworking shop but time saved by avoiding confusion when a machine is set up for a job.

Let no one assume that such a standard is based on the brief deliberations of a small group of engineering supermen. The revised standard on machine tapers referred to previously actually comes from a series established by William Sellers and Company in 1862, the Brown and Sharpe Mfg Company tapers of 1860, the Morse Twist Drill and Machine Company tapers of 1862, and the Jarno taper of 1889. The sectional committee that wrote this latest revised standard were not inventors, their function was fact-finding and determination. In a sense, this standard embodies the experience and judgment of thousands of shop men whose names will never be known. It does not arise from a flash of genius, but from the efforts of many men to find an answer to a common need. And in spite of its distinguished ancestry, it will come up for review in not over five years like every other American Standard to be sure that it is still acceptable and useful in industry.

The men who serve on ASA Committee B5, Small Tools and Machine Tool Elements, represent the National Machine Tool Builders' Association, the Metal Cutting Tool Institute, the Society of Automotive Engineers, the American Society of Mechanical Engineers, the American Iron and Steel Institute, the American Society of

T-slots on this milling machine table conform to American Standard B5.1-1949. This is only one of the many American Standards in the machine tool series, B5, that make it possible to reduce inventory in accessory equipment and tools in the user's plant.

The National Machine Tool Builders' Association is a trade association which takes into its membership the builders of machine tools, both the metal-cutting types that cut metal in the form of chips, and the metal-forming types (presses, shears, and brakes), that work metal by the use of pressure.

The membership comprises well over 90 percent of the total capacity of the industry in the United States and is located for the most part east of the Mississippi and north of the Ohio River.

The permanent offices of the Association are in Cleveland, Ohio, where its staff acts in a secretarial capacity to the Board of Directors in laying out policy and to a long list of committees that work on various aspects of the machine tool industry's problems. The staff disseminates information to outside persons regarding the industry, and secures information (as, for instance, from the Government) for dissemination to machine tool builders. During the war this service had been given to non-members as well as members, as part of the contribution of the industry to the defense program.

The Association also publishes material explaining the machine tool and its relation to our economy.

Tool Engineers, the ASA Telephone Group, the Grinding Wheel Institute, the Hydraulic Institute, the National Bureau of Standards of the United States Department of Commerce, the Army, the Navy, the Air Force, the U.S. Machine Screw Service Bureau, and 16 members "at large" representing engineering colleges and users. Such a group represents an enormous aggregate of specialized knowledge and experience in the metalworking field. Actually, all of the 37 men on the B5 Committee—and their chairman, Mr P. L. Houser of the International Harvester Company—represent the users of machine tools as well as the producers. It is the users' interest that is predominant in all of their discussions and in all of their decisions. Mr Houser himself is General Supervisor of Manufacturing Standards Research of the International Harvester Company, and has served as Deputy Director of the Metalworking Equipment Division of the National Production Authority. With occasional changes in personnel, this committee has been at work since 1922.

Another broad category of standards in our field deals with terminology. Such standards are Nomenclature, Definitions, and Letter Symbols for Screw Threads, Nomenclature for Milling Cutter Teeth, Nomenclature and Principal Dimensions of Milling Cutters, Markings for Grinding Wheels and Abrasives, Gear Nomenclature, Terms, Definitions and Illustrations, and so on. Their importance is obvious. The National Electrical Manufacturers Association

Standardization is a challenge to the purchasing agent; it is truly an essential element of the American Industrial System.—"The President's Page," by Thomas J. Scahill, *The Cincinnati Purchasor*, XXXII, No. 4, April 1953, p 12.

is now working on a revision of symbols for electrical diagrams, in consultation with the Joint Industry Conference (composed of representatives of automobile manufacturers and other large companies in the mass production industries), and similar bodies. This, it is hoped, will shortly appear as a revision of American Standards Z32.12-1947, Basic Graphical Symbols for Electrical Apparatus. The importance of uniformity in these symbols on the thousands of diagrams being produced every day by the builders and users of electrical equipment is self-evident.

Similar is the standard on Surface Roughness, Waviness and Lay, for which physical specimens are also available. This answers the question "what is smooth?" and avoids the cost of unnecessarily fine finish on industrial parts.

The broad question of terminology becomes of increasing importance because of the growing interest in the International Organization for Standardization. Shop terminology develops gradually out of daily need, and misunderstandings between countries, even where, as in England, the same basic language is in use, are costly and lead to delay. The American machine tool is pre-eminent in world markets, and our industry is therefore vitally interested. The adoption of standards in some other country that, perhaps quite unintentionally, are at variance with American Standards, places another burden on foreign trade. Overseas markets are of great importance to the machine tool industry, in spite of the many difficulties that have recently reduced these sales.

A third broad category of standards is now becoming of greater importance—those having to do with details of machine tool design and construction, not merely to afford interchangeability, as in the case of the mechanical and hydraulic press standards now being developed by engineers of the machine tool industry in collaboration with the Joint Industry Conference, but to assure greater safety of operation, to avoid interruptions to production, and to make the work of maintenance or repair more convenient.

An example of this is the Machine Tool Electrical Standards, issued in 1942 as an American War Standard. This is now out of print—but a succession of conferences between the machine tool builders, the manufacturers of motors and control in the National Electrical Manufacturers Association, and the Joint Industry Conference, has led to many changes which should shortly be submitted for adoption as an American Standard. In this field the standard will probably be in two forms—the electrical standard for machine tools for general use, and the electrical standard for machine tools for the mass production industries. There are only a few points of difference, which are now being studied to see to what extent they can be reconciled. It does seem clear, unfortunately, that there are certain stipulations which are

wholly appropriate in a large automobile plant which the majority of machine tool buyers will not accept because of their cost.

A similar standard has been written as the JIC Standard for Hydraulic Elements for Industrial Equipment, of September 1949, which has proven excellent. Minor changes were made in January 1953. Also important to some machine tool builders is the companion JIC Pneumatic Standards for Industrial Equipment of September 1950. I hope these two standards will be submitted to the American Standards Association for consideration as American Standards.

These standards, as well as those now being developed in a preliminary form for Hydraulic Presses and Mechanical Presses, affect machine elements which are not—like electrical components—largely external to the machine. They therefore require a basic re-design which in some plants has proven very costly.

Broadly speaking, because of the fundamental changes they require, it is most desirable in writing such standards to restrict them only to basic items, and not to go so far as to reduce competition or handicap the small builder. The inclusion of unnecessary refinements or undue haste in imposing a standard which so completely controls the elements of a machine creates a hardship which is especially onerous in a small organization.

In general, it may be said that improvements in machine tools come out of their actual use, and when they are basic, and have won general approval, they should be published as an American Standard and faithfully used in every engineering department, for a standard has value only if it is applied. Constant attention must be given to the desirability of reducing costs, not only in the builders' plants but in the plants of the users. Care must be used to avoid including things that are nice but not necessary, and no standard should be adopted that restricts improvement in the art. American machine tools are the best in the world today, but every machine tool builder is determined to make them even better •

New Standard on Drainage Fittings

By J. E. Gray, Mueller Brass Company; chairman of Subgroup 1 on Cast-Brass Solder-Joint Drainage Fittings, Sectional Committee B16 on Standardization of Pipe Flanges and Fittings.

THE use of copper tubing and solder-type fittings for plumbing and general piping had its beginning about 1930. As is customary with any new product development, each manufacturer developed his own standards. The cup diameters were uniform but wide variations in wall thicknesses, cup depths, and laying dimensions resulted.

As the use of solder-joint fittings expanded, the need for a standard became increasingly apparent. However, sufficient information regarding the strength of joints of this type was not available.

In 1936 the National Bureau of Standards, in cooperation with the Federal Housing Administration, undertook a study of the strength of solder joints. In 1937, investigation was continued under the sponsorship of the Copper and Brass Research Association and ASA Committee A40.[1] Progress reports were published periodically, and on September 20, 1940 the Bureau issued its report, BMS-58 "Strength of Soft Solder Joints in Copper Tubing."

Concurrently with this investigation by the Bureau, Subcommittee 11 of Sectional Committee A40 held meetings for the purpose of forming a standard for solder-type fittings. American Standard A40.3 on solder-type fittings for supply and pressure piping was published in 1941.

Standardization activity in this field was transferred to Sectional Committee B16[2] in 1949. Subcommittee 9 was organized and work on a revision of the A40.3 standard was started. During the deliberations of this group, it was recognized that to cover adequately the whole subject of solder-joint fittings three separate standards would be required. Subsequently, three standards have been published: B16.18-1950, covering cast brass fittings for pressure lines; B16.22-1951, covering wrought copper and bronze fittings for pressure lines; and B16.23-1953, covering cast brass drainage fittings.

Preparation of the drainage fittings standard was carried on by a task group organized under the sponsorship of the MSS Solder-Joint Fittings Committee. All existing standards covering the various types of drainage fittings and all model plumbing codes were examined by the task group in order to avoid conflicts and inconsistencies. Special research was conducted in order to establish certain limiting dimensions.

The standard as completed and published this year covers cast-brass solder-joint drainage fittings designed for use with copper water tube. It includes recommendations concerning the pitch, or slope, of the fittings, abbreviations, the sizes and method of designating openings for reducing fittings, marking, minimum requirements for materials, and dimensions and tolerances.

Considerable difficulty was encountered by the task group in determining the correct terminology to use in identifying the fittings. Many codes, including the Uniform Plumbing Code, refer to drainage fittings by names, but nowhere could the group find an authoritative set of sketches identified by universally used names. Therefore, the committee selected the names of fittings and other terminology that appeared to be most generally in use.

[1] Sectional Committee on Minimum Requirements for Plumbing and Standardization of Plumbing Equipment, A40, sponsored by the American Society of Mechanical Engineers and the American Public Health Association. This committee has now been discharged.

[2] Sectional Committee on Standardization of Pipe Flanges and Fittings, B16, sponsored by the Heating, Piping, and Air Conditioning Contractors National Association; the Manufacturers Standardization Society of the Valve and Fittings Industry; and the American Society of Mechanical Engineers.

Copies of the American Standard Cast-Brass Solder-Joint Drainage Fittings, B16.23-1953, can be ordered from ASA at $1.00.

How to Figure Ventilation Rates

TABULATIONS of toxic materials used in open tank operations have been compiled as an aid in determining the correct ventilation rate to be used in controlling atmospheric contaminants. The tabulations are intended for use in connection with the American Standard Safety Code for Ventilation and Operation of Open Surface Tanks, Z9.1-1951. Irving Kingsley, New York State Department of Labor, Industrial Hygiene Engineer, who made the compilations, explains that proper use of American Standard Z9.1-1951 "presupposes a knowledge of the toxic materials which may be encountered in the many tank operations existing at this time." However, he points out, "many of us are not sufficiently familiar with open surface tank operations to be able to predict with any degree of certainty the particular toxic mist, fume, gas or vapor that may be emitted from the tank as a consequence of normal operating procedure."

The compilations have been duplicated on Engineering Plates 161, 162, and 163, reproduced here by special permission of the New York State Department of Labor.

In an article announcing the compilation, published in the *Monthly Review* of the Department's Division of Industrial Hygiene and Safety Standards, Mr Kingsley writes: "It was not possible to list on these sheets every open surface tank process now known. However, an attempt was made to include those operations which are in common use today. Plate No. 161 shows that for each operation, both the components of the bath which may cause a health hazard if discharged into the workroom air and the actual contaminant which is to be controlled if possible injury to the worker is to be avoided are indicated. This makes it possible to identify one of the factors (hazard potential) which determines the class of the operation as categorized by American Standard Z9.1. The other factor determining the American Standard Z9.1 class (gassing rate) is obtained from the columns on the plate, indicating the gassing rate and usual temperature range.

"This may be illustrated as follows: Stainless steel immunization is performed in a bath containing nitric acid as the component most likely to cause a health hazard if released to the atmosphere. Plate No. 161 shows that nitrogen oxide gases are released and constitute the contaminant to be brought under control; that the rate of gassing is medium and that the usual operating temperature is 70-120 F. With this information, the American Standard Z9.1 Code (Tables 1 and 2) can be consulted to determine the proper class of this operation. Once the class of operation is known, the ventilation rates for the various hood types and tank dimensions can be calculated from Table 3 and 4 of that Code."

In his explanation, Mr Kingsley gives a typical example using a 5 x 2½-foot tank for this operation:

Operation—Stainless Steel Immunization at 100 F.
Hood to be used: Lateral exhaust hood along two parallel sides of a free-standing tank not against a wall or baffle.
Tank Surface Area: 12½ sq ft

$$\frac{\text{Tank Width}}{\text{Tank Length}} = \frac{W}{L} = \frac{2.5}{5} = 0.5$$

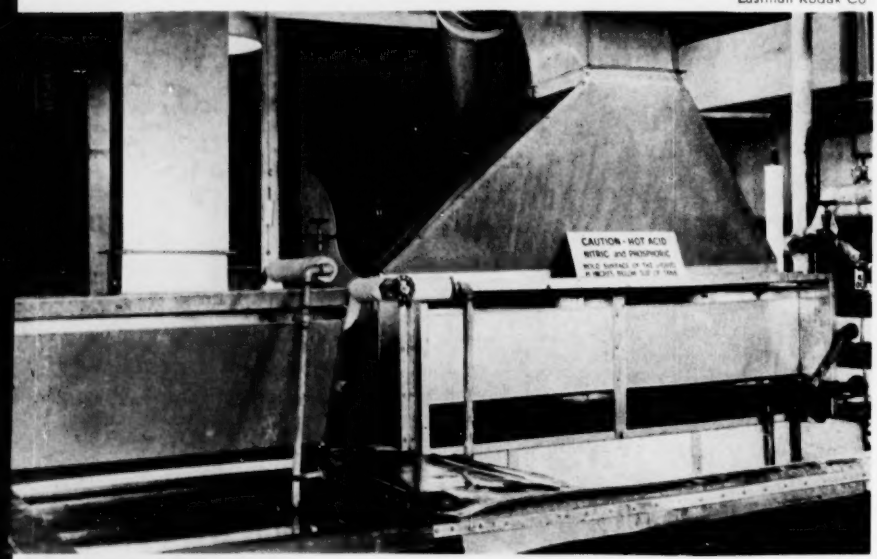
Atmospheric Contaminant: Nitrogen oxide gases (from plate 161)
Rate of Gassing: Medium (from plate 161)
Usual Temperature Range: 70 F — 120 F (from plate 161)
Hazard Potential: A (Table 1 and Appendix A1—(Amer Std Z9.1)
Gassing Rate: 2 (Table 2)—(Amer Std Z9.1)
Class: A-2
Minimum Control Velocity: 100 fpm (Table 3—Amer Std Z9.1)
Minimum Ventilation Rate: 225 cfm sq ft of Tank Area (Table 4—Amer Std Z9.1)
Total Air Required = 225 x 12½ = 2810 cfm

"It will be noted," Mr Kingsley says, "that in some instances more than one atmospheric contaminant is indicated. In these cases the class of operation should be based on that contaminant having the higher hazard potential.

"Where more than one rate of gassing is shown on the plate, it signifies that the lower gassing rate is associated with the lower temperature of the temperature range in which this operation may be performed. The higher gassing rate will therefore take place at the higher temperature of this range."

Nitric acid aluminum polishing operation at right requires more ventilation than cold water rinse at left. Because of excessive drafts, addition of a baffle between the two tanks, and an end baffle on the acid tank was planned by company using these tanks. American Standard Z9.1-1951 provides information needed to compute quantity of air required to be exhausted from each tank.

Eastman Kodak Co



AIR-BORNE CONTAMINANTS RELEASED BY METALLIC SURFACE TREATMENT, PICKLING, ACID DIPPING, AND METAL CLEANING OPERATIONS

Process	Type	Footnote	Component of Bath Which May be Released to Atmosphere	Physical and Chemical Nature of Major Atmospheric Contaminant	Rate of Gassing	Usual Temp. Range-°F
Surface Treatment	Anodizing Aluminum		Chromic-Sulfuric Acids	Acid Mist	Medium	95 and up
	Black Magic		Conc.Sol.Alkaline Oxidizing Agents	Alkaline Mist,Steam	High	260-----350
	Bonderizing	(a)	Boiling Water	Steam	Medium-High	140-----212
	Chemical Coloring		None	None	Nil	70------90
	Descaling	(b)	Nitric-Sulfuric,Hydrofluoric Acids	Acid Mist,Hydrogen Fluoride Gas,Steam	Medium-High	70------150
	Dulite		Conc.Sol.Alkaline Oxidizing Agents	Alkaline Mist,Steam	High	260-----350
	Ebonol		Conc.Sol.Alkaline Oxidizing Agents	Alkaline Mist,Steam	High	260-----350
	Galvanic-Anodize	(c)	Ammonium Hydroxide	Ammonia Gas,Steam	Low	140
	Hard Coating Aluminum		Chromic-Sulfuric Acids	Acid Mist	High	120-----180
	Jetal		Conc.Sol.Alkaline Oxidizing Agents	Alkaline Mist,Steam	High	260-----350
	Magcote	(d)	Sodium Hydroxide	Alkaline Mist,Steam	Low-Medium	105-----212
	Magnesium Pre Dye Dip		Ammonium Hydroxide-Ammonium Acetate	Ammonia Gas,Steam	Low	70------180
	Parkerizing	(a)	Boiling Water	Steam	Medium-High	140-----212
	Zincate Immersion	(e)	None	None	Nil	70------90
Pickling	Aluminum		Nitric Acid	Nitrogen Oxide Gases	Medium	70------90
	Aluminum		Chromic,Sulfuric Acids	Acid Mists	Low	140
	Aluminum		Sodium Hydroxide	Alkaline Mist	Medium	140
	Cast Iron		Hydrofluoric-Nitric Acids	Hydrogen Fluoride-Nitrogen Oxide Gases	Medium-High	70------90
	Copper		Sulfuric Acid	Acid Mist,Steam	Low-Medium	125-----175
	Copper	(f)	None	None	Nil	70------175
	Duralumin		Sodium Fluoride,Sulfuric Acid	Hydrogen Fluoride Gas,Acid Mist	Low	70
	Inconel		Nitric,Hydrofluoric-Sulfuric Acids	Nitrogen Oxide,HF Gases,Acid Mist,Steam	Medium-High	150-----180
	Iron and Steel		Hydrochloric-Sulfuric Acids	Hydrogen Chloride Gas-Acid Mist,Steam	Medium-High	70------190
	Magnesium		Chromic-Sulfuric,Nitric Acids	Nitrogen Oxide Gases,Acid Mist,Steam	Medium	70------160
	Monel		Hydrochloric-Sulfuric Acids	Hydrogen Chloride Gas-Acid Mist,Steam	Medium-High	70------190
	Nickel		Hydrochloric-Sulfuric Acids	Hydrogen Chloride Gas-Acid Mist,Steam	Medium-High	70------190
	Nickel Silver		Sulfuric Acid	Acid Mist,Steam	Low-Medium	70------140
	Silver		Sodium Cyanide	Cyanide Mist,Steam	Low	70------210
	Stainless Steel	(g)	Nitric,Hydrofluoric Acids	Nitrogen Oxide,Hydrogen Fluoride Gases	Medium	125-----180
	Stainless Steel	(g)(h)	Hydrochloric-Sulfuric Acids	Hydrogen Chloride Gas-Acid Mist,Steam	Medium-High	70------190
	Stainless Steel Immunization		Nitric Acid	Nitrogen Oxide Gases	Medium	70------120
	Stainless Steel Passivation		Nitric Acid	Nitrogen Oxide Gases	Medium	70------120
Acid Dipping	Aluminum Bright Dip		Phosphoric,Nitric Acids	Acid Mist,Steam	High	200
	Aluminum Bright Dip		Nitric,Sulfuric Acids	Nitrogen Oxide Gases,Acid Mist	Medium-High	70------90
	Cadmium Bright Dip		None	None	Nil	70
	Copper Bright Dip		Nitric,Sulfuric Acids	Nitrogen Oxide Gases,Acid Mist	Medium-High	70------90
	Copper Semi Bright Dip		Sulfuric Acid	Acid Mist	Low-Medium	70
	Copper Alloys Bright Dip		Nitric,Sulfuric Acids	Nitrogen Oxide Gases,Acid Mist	Medium-High	70------90
	Copper Matte Dip		Nitric,Sulfuric Acids	Nitrogen Oxide Gases,Acid Mist	Medium-High	70------90
	Magnesium Dip		Chromic Acid	Acid Mist,Steam	Medium	190-----212
	Magnesium Dip		Nitric,Sulfuric Acids	Nitrogen Oxide Gases,Acid Mist	Medium-High	70------90
	Monel Dip		Nitric,Sulfuric Acids	Nitrogen Oxide Gases,Acid Mist	Medium-High	70------90
	Nickel and Nickel Alloys Dip		Nitric,Sulfuric Acids	Nitrogen Oxide Gases,Acid Mist	Medium-High	70------90
	Silver Dip		Nitric-Sulfuric Acids	Nitrogen Oxide Gases,Acid Mist	Medium-High	70------90
	Zinc and Zinc Alloys Dip		Chromic,Hydrochloric Acids	Hydrogen Chloride Gas(If HCl attacks Zn)	Nil-Low	70------90
Metal Cleaning	Alkaline Cleaning	(i)	Alkaline Sodium Salts	Alkaline Mist,Steam	Medium-High	160-----210
	Degreasing		Trichlorethylene-Perchlorethylene	Trichlorethylene-Perchlorethylene Vapors	High	188-----250
	Emulsion Cleaning		Petroleum-Coal Tar Solvents	Petroleum-Coal Tar Vapors	Low-Medium	70------140
	Emulsion Cleaning		Chlorinated Hydrocarbons	Chlorinated Hydrocarbon Vapors	Medium	70------140

FOOTNOTES (a) Also Aluminum Seal,Magnesium Seal, Magnesium Dye Set,Dyeing Anodized Magnesium,Magnesium Alkaline Dichromate Soak,Coloring Anodized Aluminum
(b) Stainless Steel before Electropolishing
(c) On Magnesium
(d) Also Manodyz, Dow-12
(e) On Aluminum
(f) Sodium Dichromate,Sulfuric Acid Bath and Ferrous Sulfate,Sulfuric Acid Bath
(g) Scale Removal
(h) Scale Loosening
(i) Soak and Electrocleaning

Reproduced from Engineering Unit Plate No. 161, issued by the New York State Department of Labor, Division of Industrial Hygiene and Safety Standards, New York.

AIR-BORNE CONTAMINANTS RELEASED BY ELECTROPOLISHING, ELECTROPLATING AND ETCHING OPERATIONS

Process	Type	Footnote	Component of Bath Which May be Released to Atmosphere	Physical and Chemical Nature of Major Atmospheric Contaminant	Rate of Gassing	Usual Temp. Range-°F
Electropolishing	Aluminum	(a)	Sulfuric,Hydrofluoric Acids	Acid Mist,Hydrogen Fluoride Gas,Steam	Medium	140-----200
	Brass,Bronze	(a)	Phosphoric Acid	Acid Mist	Low	68
	Copper	(a)	Phosphoric Acid	Acid Mist	Low	68
	Iron	(a)	Sulfuric,Hydrochloric,Perchloric Acids	Acid Mist,Hydrogen Chloride Gas,Steam	Medium	68------175
	Monel	(a)	Sulfuric Acid	Acid Mist,Steam	Medium	86------160
	Nickel	(a)	Sulfuric Acid	Acid Mist,Steam	Medium	86------160
	Stainless Steel	(a)	Sulfuric,Hydrofluoric,Chromic Acids	Acid Mist,Hydrogen Fluoride Gas,Steam	Medium-High	70------300
	Steel	(a)	Sulfuric,Hydrochloric,Perchloric Acids	Acid Mist,Hydrogen Chloride Gas,Steam	Medium	68------175
Strike Solutions	Copper		Cyanide Salts	Cyanide Mist	Medium	70------90
	Silver		Cyanide Salts	Cyanide Mist	Medium	70------90
	Wood's Nickel		Nickel Chloride,Hydrochloric Acid	Hydrogen Chloride Gas,Chloride Mist	Medium	70------90
Etching	Aluminum		Sodium Hydroxide-Soda Ash-Trisodium Phosphate	Alkaline Mist,Steam	High	160-----180
	Copper	(b)	Hydrochloric Acid	Hydrogen Chloride Gas	Medium	70- ---90
	Copper	(c)	None	None	Nil	70
Electroplating Alkaline	Platinum		Ammonium Phosphate,Ammonia Gas	Ammonia Gas	Medium	158-----203
	Tin		Sodium Stannate	Tin Salt Mist,Steam	Low	140-----170
	Zinc	(d)	None	None	Nil-Low	170-----180
Electroplating Fluoborate	Cadmium		Fluoborate Salts	Fluoborate Mist,Steam	Low-Medium	70------170
	Copper		Copper Fluoborate	Fluoborate Mist,Steam	Low-Medium	70------170
	Indium		Fluoborate Salts	Fluoborate Mist,Steam	Low-Medium	70------170
	Lead		Lead Fluoborate-Fluoboric,Hydrofluoric Acids	Fluoborate Mist,Hydrofluoric Acid	Low	70------90
	Lead-Tin Alloy		Lead Fluoborate,Fluoboric Acid	Fluoborate Mist	Low	70------100
	Tin		Stannous Fluoborate,Fluoboric Acid	Fluoborate Mist	Low	70------100
	Zinc		Fluoborate Salts	Fluoborate Mist,Steam	Low-Medium	70------170
Electroplating Cyanide	Brass,Bronze	(e)(f)	Cyanide Salts,Ammonium Hydroxide	Cyanide Mist,Ammonia Gas	Nil-Low	60------100
	Black Nickel	(f)	None	None	Nil	70------100
	Bright Zinc	(f)	Cyanide Salts,Sodium Hydroxide	Cyanide,Alkaline Mists	Low	70------120
	Cadmium	(f)	None	None	Nil	70------100
	Copper	(f)(g)	None	None	Low-Medium	70------160
	Copper	(f)(h)	Cyanide Salts,Sodium Hydroxide	Cyanide,Alkaline Mists,Steam	Low-Medium	110-----160
	Gold	(f)	Cyanide Salts	Cyanide Mist,Steam	Nil-Low	75------214
	Indium	(f)	Cyanide Salts,Sodium Hydroxide	Cyanide,Alkaline Mists	Low	70------120
	Silver	(f)	None	None	Nil-Low	72------120
	Tin-Zinc Alloy	(f)	Cyanide Salts,Potassium Hydroxide	Cyanide,Alkaline Mists,Steam	Low-Medium	120-----140
	White Alloy	(f)(i)	Cyanide Salts,Sodium Stannate	Cyanide,Alkaline Mists	Low	120-----150
	Zinc	(f)(j)	Cyanide Salts,Sodium Hydroxide	Cyanide,Alkaline Mists	Low	70------120
Electroplating Acid	Chromium		Chromic Acid	Chromic Acid Mist	High	90------140
	Copper	(k)	Copper Sulfate,Sulfuric Acid	Sulfuric Acid Mist	Nil-Low	75------120
	Indium	(l)	None	None	Nil	70------120
	Iron		Chloride Salts,Hydrochloric Acid	Hydrochloric Acid Mist,Steam	Medium	190-----210
	Iron	(l)	None	None	Nil	70------120
	Nickel	(d)	Ammonium Fluoride,Hydrofluoric Acid	Hydrofluoric Acid Mist	Low	102
	Nickel	(l)(m)	None	None	Nil	70------120
	Palladium	(m)(n)	None	None	Nil	70------120
	Rhodium	(l)(o)	None	None	Nil	70------120
	Tin		Tin Halide	Halide Mist	Medium	70------90
	Tin	(l)	None	None	Nil	70------120
	Zinc		Zinc Chloride	Zinc Chloride Mist	Low	75------120
	Zinc	(l)	None	None	Nil	70------120

FOOTNOTES (a) Arsine may be produced due to the presence of arsenic in the metal or polishing bath.
(b) Dull Finish
(c) Ferric Chloride Bath
(d) On Magnesium
(e) Also Copper-Cadmium Bronze
(f) HCN gas may be evolved due to the acidic action of CO_2 in the air at the surface of the bath
(g) Conventional Cyanide Bath
(h) Except Conventional Cyanide Bath
(i) Albaloy, Spekwhite, Bonwhite (Alloys of Copper, Tin, Zinc)
(j) Using insoluble anodes
(k) Over 90°F
(l) Sulfate Bath
(m) Chloride Bath
(n) Nitrite Bath
(o) Phosphate Bath

Reproduced from Engineering Unit Plate No. 162, issued by the New York State Department of Labor, Division of Industrial Hygiene and Safety Standards, New York.

AIR-BORNE CONTAMINANTS RELEASED BY STRIPPING OPERATIONS

Coating to be Stripped	Base Metal (Footnote)	Component of Bath Which May be Released to Atmosphere	Physical and Chemical Nature of Major Atmospheric Contaminant	Rate of Gassing	Usual Temp. Range-°F
Anodized Coatings	1,7	Chromic Acid	Acid Mist,Steam	Medium	120-----200
Black Oxide Coatings	14	Hydrochloric Acid	Hydrogen Chloride Gas	Low-Medium	70------125
Brass and Bronze	8,14 (a)	Sodium Hydroxide,Sodium Cyanide	Alkaline,Cyanide Mists	Low-Medium	70------90
Cadmium	8,14 (a)	Sodium Hydroxide,Sodium Cyanide	Alkaline,Cyanide Mists	Low-Medium	70------90
	2,4,14	Hydrochloric Acid	Acid Mist,Hydrogen Chloride Gas	Low-Medium	70------90
Chromium	7,8,14 (a)	Sodium Hydroxide	Alkaline Mist,Steam	Low	70------150
	2,4,8,14	Hydrochloric Acid	Hydrogen Chloride Gas	Medium	70------125
	2,4,8,18 (a)	Sulfuric Acid	Acid Mist	Medium	70------90
Copper	8,14	Sodium Hydroxide,Sodium Cyanide	Alkaline,Cyanide Mists	Low-Medium	70------90
	7,12,14 (b)	None	None	Nil	70------90
	14 (a)	Alkaline Cyanide	Cyanide Mist	Low-Medium	70------160
	1	Nitric Acid	Nitrogen Oxide Gases	High	70------120
	18 (a)	Sodium Hydroxide-Sodium Sulfide	Alkaline Mist,Steam	Medium	185-----195
Gold	4,5,6,8,9,14 (a)	Sodium Hydroxide,Sodium Cyanide	Alkaline,Cyanide Mists	Low-Medium	70------90
	4,5,18 (a)	Sulfuric Acid	Acid Mist	Low-Medium	70------100
Lead	13 (c)	Acetic Acid,Hydrogen Peroxide	Oxygen Mist	Low	70------90
	14 (a),(c)	Sodium Hydroxide	Alkaline Mist,Steam	Low-Medium	70------140
Nickel	2,4	Sulfuric,Nitric Acids	Nitrogen Oxide Gases	Medium-High	70------90
	2,4 (a)	Hydrochloric Acid	Hydrogen Chloride Gas	Low	70------90
	2,4,14 (a)	Sulfuric Acid	Acid Mist	Low	70------90
	7	Hydrofluoric Acid	Hydrogen Fluoride Gas	Low-Medium	70------90
	14	Fuming Nitric Acid	Nitrogen Oxide Gases	High	70------90
	(a),(d)	Hot Water	Steam	Medium	200
	1,18,19 (a)	Sulfuric Acid	Acid Mist,Steam	Low-Medium	70------150
Phosphate Coatings	15	Chromic Acid	Acid Mist,Steam	Low	165
	16	Ammonium Hydroxide	Ammonia Gas	Low-Medium	70------90
Rhodium	10	Sulfuric,Hydrochloric Acids	Acid Mist,Hydrogen Chloride Gas	Low-Medium	70------100
Silver	1	Nitric Acid	Nitrogen Oxide Gases	High	70------90
	2,11	Sulfuric,Nitric Acids	Nitrogen Oxide Gases,Steam	High	180
	8,14 (a)	Sodium Hydroxide,Sodium Cyanide	Alkaline,Cyanide Mists	Low	70------90
	17 (a)	Sodium Cyanide	Cyanide Mist	Low	70------90
Tin	2,3,4	Ferric Chloride,Copper Sulfate, Acetic Acid	Acid Mist	Nil-Low	70------90
	(a)	Sodium Hydroxide	Alkaline Mist	Low	70------90
	2,4,14	Hydrochloric Acid	Hydrogen Chloride Gas	Low-Medium	70------90
	14 (a)	Sodium Hydroxide	Alkaline Mist,Steam	Medium	70------200
Zinc	1	Nitric Acid	Nitrogen Oxide Gases	High	70------90
	8,14	Sodium Hydroxide,Sodium Cyanide	Alkaline,Cyanide Mists	Low	70------90

FOOTNOTES
1. Aluminum
2. Brass
3. Bronze
4. Copper
5. Copper Alloys
6. Ferrous Metals
7. Magnesium
8. Nickel
9. Nickel Alloys
10. Nickel Plated Brass
11. Nickel Silver
12. Non Ferrous Metals
13. Silver
14. Steel
15. Steel(Manganese Type Coatings)
16. Steel(Zinc Type Coatings)
17. White Metal
18. Zinc
19. Zinc Base Die Castings
(a) Electrolytic Process
(b) Refers only to Steel (14) when Chromic,Sulfuric Acids Bath is used.
(c) Also Lead Alloys
(d) Sodium Nitrate Bath

Reproduced from Engineering Unit Plate No. 163, issued by the New York State Department of Labor, Division of Industrial Hygiene and Safety Standards, New York.

General Electric Co

"Street lighting evaluator" attached to this car measures pavement brightness, obstacle brightness, and glare. A calculator combines factors and computes result.

UP-TO-DATE LIGHTING TO CUT NIGHT HIGHWAY ACCIDENTS

In an effort to reduce night auto traffic fatalities, the American Standard on Street and Highway Lighting, D12.1-1947, has been revised and improved.

Limited visibility, according to traffic authorities, is largely responsible for the increased ratio of night auto deaths, almost three times greater than in the day. National Safety Council figures for 1950 indicate that the motor vehicle death rate per 100 million vehicle miles is 14 at night compared with five during the day.

In addition to personal safety for motorists and pedestrians, improved lighting in accordance with the new standard also is expected to expedite the movement of traffic and help reduce crime on the highway.

Where improved lighting already has been installed, there has been a marked reduction in night accidents, and pedestrian and vehicular traffic has been expedited, according to investigations by authorities.

American Standard D12.1-1953 is intended as a guide to those planning and installing lighting on public thoroughfares. It includes the latest developments in lighting and takes into consideration the changes in auto traffic conditions during the past six years.

It was developed by the Street and Highway Lighting Committee of the Illuminating Engineering Society, sponsor for the project under the procedure of the American Standards Association. This committee includes representatives of lighting equipment suppliers, those who provide electrical energy, and others interested

Covered in the 1953 standard are classifications of streets and highways, classifications of light distributions, a discussion of the design of street and highway lighting, and conditions requiring special consideration.

The new edition clarifies types of light distribution to fit better the rectangular spaces involved in street width and spacing of lights. It contains more precise definitions of light distribuitons. Pictorial presentations are improved and new ones have been added.

Tables, giving mounting heights for lights and typical layouts, have been expanded to include mercury lamps, new and larger incandescent filament lamps, and new types of light distributors.

There has been no change in the illumination levels recommended but clarifying notes have been added to aid in the interpretation. The section on tree trimming has been expanded.

The appendices, which are not officially part of the standard, now include Computation of Roadway Illumination and Measurement of Factors in Roadway Lighting.

This revision of the earlier standard was developed under the proprietary sponsorship of the Illuminating Engineering Society.

Copies of the American Standard Practice for Street and Highway Lighting, D12.1-1953, will be available soon from the American Standards Association, 70 East 45th Street, New York, N. Y., at 50 cents each.

ASA Assures Careful Action on Standards

The Standards Council and Board of Directors of ASA have taken action to assure that every standard considered for approval is given adequate judicial consideration. They have reaffirmed the rule that whenever one of the Standards Boards (formerly known as correlating committees) acts as sponsor for a project it shall turn over its judicial responsibility to some other group. The new ruling names the Miscellaneous Standards Board as the group to assume this function instead of the ASA Committee on Procedure. The committee has the responsibility for studying and ruling on all questions arising in connection with the procedures of the American Standards Association. Therefore, it is considered more appropriate that the actual approval of standards or projects should be handled by one of the Standards Boards. In special cases a committee designated by the chairman of the Standards Council may act in place of the Miscellaneous Standards Board.

BRITISH CONSIDER U.S. VIEWS

A number of articles originally published by the American Standards Association are included in the April issue of the British publication "Standardization." This interesting little magazine is published by Standardization (Defence), British Ministry of Supply. British industry and public would both benefit if standardization were used as a tool of management in the UK as it is in the USA, the editor comments. He says:

"Criticism may be leveled at the editor for including in this issue so much material of American origin and for those who would thus upbraid him he would ask that they should re-read the articles for the fundamental object of the articles has been missed. Much is said each day by people in every walk of life on the importance to Great Britain of efficient management, but despite this a good deal of what good management requires is unknown to those whose business it is to practice the art. In the USA where there is so much skill in blending together Capital, Material Resources, and Management, considerable attention is given to Standardization as a management factor which ensures the highest efficiency and the greatest returns for the effort expended. It is recognized there that not only does the National Defense rest on the conservation of manpower and material that Standardization effects, but that the constant raising of the individual's standards of living is inextricably bound up with it. Indeed the reiteration of this policy was emphasized over and over again at the National Conference of Standardization held in New York by all the participants from the Services and Industry who gathered there."

The material reprinted included the acceptance speech by the Honorable Herbert Hoover at the time he received the Howard Coonley Medal; the article by George M. Rice of the Ford Motor Company on "The Advantages of Standardization"; a quotation from E. H. Weaver, General Chairman of the National Association of Purchasing Agents' Committee on Standardization; an extract from the speech of William L. Batt at the Annual Luncheon Meeting of the American Standards Association in November 1952; an announcement of the 1952 edition of the American Standard Preferred Thicknesses for Uncoated Thin Flat Metals; and a condensation from Brigadier General Donald Armstrong's speech at the First National Standardization Conference called by ASA.

New Home for British Standards Institution

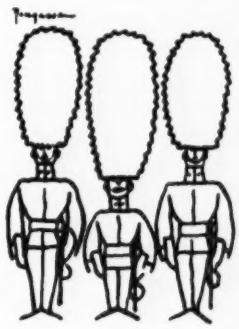
The British Standards Institution has just announced to its 7,800 subscribing members that it will move at the end of next summer into a single, self-contained office at 2, Park Street, Mayfair.

It is well over half-a-century since the BSI occupied its first office at No. 28, Victoria Street, London. Today the Institution spreads over seven floors of the same building and the adjoining No. 24. It also occupies extensive accommodations at 24, Gillingham Street, a mile away behind Victoria Street.

Although the floor-space at "British Standards House," as the new home is to be called, is not substantially greater than that at present occupied by the BSI, concentration of the staff and facilities under one roof will aid efficiency and economy; and space will also be available for all the 3,800 committee meetings which the BSI convenes in the course of the year.

The many thousands of industrial and professional people in practically every major field of industry, who devote so much time to serving on BSI technical and policy committees, will find added convenience in this centralization.

The Institution's work and responsibilities are still rapidly expanding, as evidenced by the fact that nearly a million copies of British Standards are sold in a year—and more than a quarter of them overseas. Some 250 new and revised standards are prepared each year, and now the Institution is engaged in the preparation of quality and performance standards for the wide range of clothing, furniture, and domestic equipment which was formerly covered by Utility schemes.



Height standard

Reproduced by permission of the proprietors of PUNCH.
Courtesy "Standardization," British Ministry of Supply

The new building will not only provide an appropriate and dignified home, but will also enable the Institution's services to be more efficiently operated in the interests of its members and of industry in general.

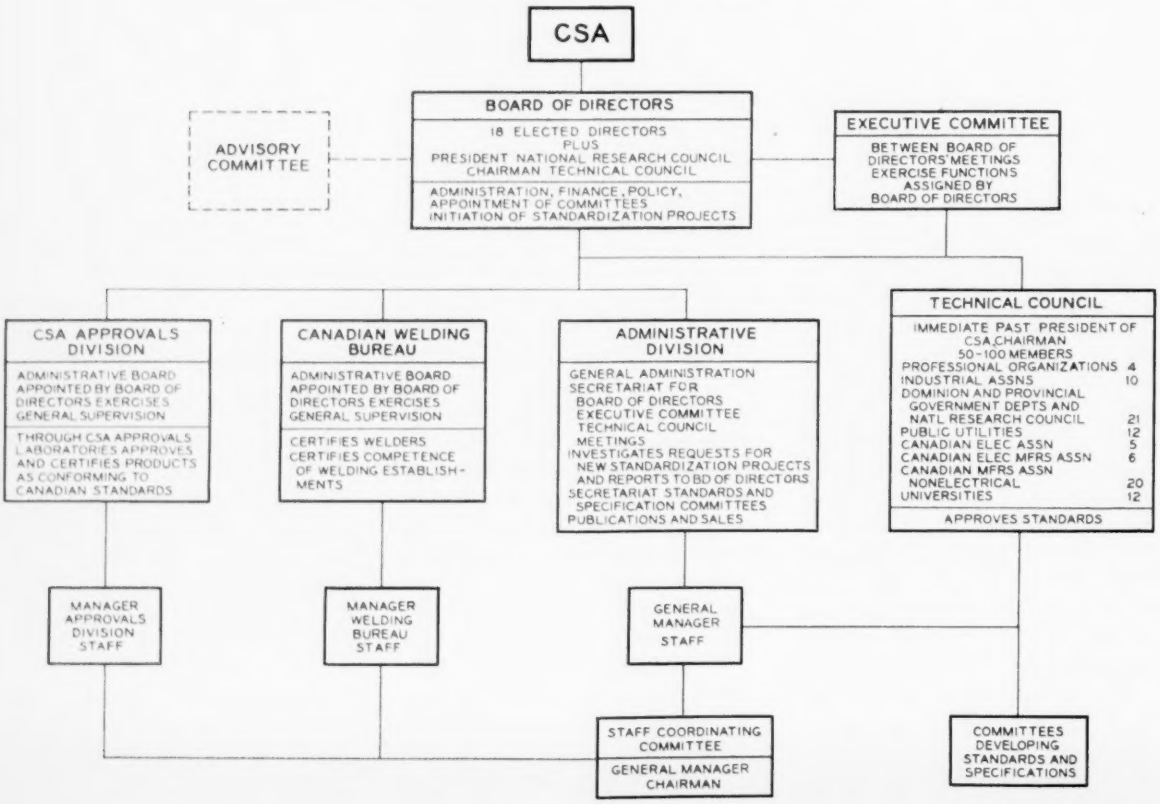
(Reprinted by permission of "Standardization," published by Standardization [Defence], British Ministry of Supply) April 1953.

CANADIAN STANDARDS ASSOCIATION REORGANIZED

THE new setup of the Canadian Standards Association, adopted recently in its revised Constitution, is shown in the chart below. Note that responsibility for initiation of standardization projects and for appointment of committees is vested in the Board of Directors, whereas approval of Canadian Standards rests with the Technical Council. The Council is similar to ASA's Standards Council, consisting of representatives of CSA member organizations. The Administrative Division, which consists of the General Manager and his staff, handles the secretariat for both Board of Directors and Technical Council, as well as for standards and specifications committees. It is also responsible for investigating requests for new standardization projects and reporting its findings to the Board of Directors. It handles publication and sale of standards. A staff coordinating committee, of which the General Manager is chairman, maintains liaison with the staffs of the Approvals Division, responsible for approving and certifying products in conformance with Canadian Standards, and the Canadian Welding Bureau, which certifies welders and the competence of welding establishments. Both operate independently of the Administrative Division, but under supervision of the Board.

At the CSA annual meeting in April reports showed that 396 standardization projects had been active during the past year, and that 136 new standards or new editions of existing standards had been approved.

How the Canadian Standards Association Is Organized


CSA
BOARD OF DIRECTORS
18 ELECTED DIRECTORS PLUS PRESIDENT NATIONAL RESEARCH COUNCIL CHAIRMAN TECHNICAL COUNCIL
ADMINISTRATION, FINANCE, POLICY, APPOINTMENT OF COMMITTEES INITIATION OF STANDARDIZATION PROJECTS
ADVISORY COMMITTEE
EXECUTIVE COMMITTEE
BETWEEN BOARD OF DIRECTORS' MEETINGS EXERCISE FUNCTIONS ASSIGNED BY BOARD OF DIRECTORS
CSA APPROVALS DIVISION
ADMINISTRATIVE BOARD APPOINTED BY BOARD OF DIRECTORS EXERCISES GENERAL SUPERVISION
THROUGH CSA APPROVALS LABORATORIES APPROVES AND CERTIFIES PRODUCTS AS CONFORMING TO CANADIAN STANDARDS
CANADIAN WELDING BUREAU
ADMINISTRATIVE BOARD APPOINTED BY BOARD OF DIRECTORS EXERCISES GENERAL SUPERVISION
CERTIFIES WELDERS CERTIFIES COMPETENCE OF WELDING ESTABLISHMENTS
ADMINISTRATIVE DIVISION
GENERAL ADMINISTRATION SECRETARIAT FOR BOARD OF DIRECTORS EXECUTIVE COMMITTEE TECHNICAL COUNCIL MEETINGS
INVESTIGATES REQUESTS FOR NEW STANDARDIZATION PROJECTS AND REPORTS TO BD OF DIRECTORS
SECRETARIAT STANDARDS AND SPECIFICATION COMMITTEES
PUBLICATIONS AND SALES
TECHNICAL COUNCIL
IMMEDIATE PAST PRESIDENT OF CSA, CHAIRMAN
50-100 MEMBERS
PROFESSIONAL ORGANIZATIONS 4
INDUSTRIAL ASSNS 10
DOMINION AND PROVINCIAL GOVERNMENT DEPTS AND NATL RESEARCH COUNCIL 21
PUBLIC UTILITIES 12
CANADIAN ELEC ASSN 5
CANADIAN ELEC MFRS ASSN 6
CANADIAN MFRS ASSN NONELECTRICAL 20
UNIVERSITIES 12
APPROVES STANDARDS
MANAGER APPROVALS DIVISION STAFF
MANAGER WELDING BUREAU STAFF
GENERAL MANAGER STAFF
STAFF COORDINATING COMMITTEE
GENERAL MANAGER CHAIRMAN
COMMITTEES DEVELOPING STANDARDS AND SPECIFICATIONS

ASA President Roger Gay presents service award to Edward T. Gushée. Left to right:—T. D. Jolly, vice-president, Aluminum Company of America and past-president of ASA; Roger E. Gay, president, The Bristol Brass Corporation and president of ASA; Edward T. Gushée, vice-president, Detroit Edison Company; Colonel J. G. Vincent, former representative of the Automobile Manufacturers Association on ASA's Board of Directors.

Four members of ASA's Board of Directors were honored by the American Standards Association with service awards at a meeting of the Board May 12. Those who received awards were J. R. Townsend, now on leave from the Bell Telephone Laboratories to direct Materials and Standards Engineering of the Sandia Corporation, Albuquerque, New Mexico; Robert D. Bonney, vice-president of Congoleum-Nairn, Inc, Kearny, New Jersey; Colonel Willard T. Chevalier, executive vice-president of the McGraw-Hill Publishing Company, New York, and Edward T. Gushée, vice-president, Detroit Edison Company. The awards were presented in appreciation of leadership and guidance and in recognition of "statesmanship and vision in advancing the development and use of voluntary standards as instruments of free enterprise."

The May 12 meeting of ASA's Board of Directors at which the service awards were presented was held in Detroit, Michigan. Following a tour of one of the Detroit Edison's generating plants the Directors were guests of Mr Gushée at a luncheon at the Detroit Club. During the afternoon, Colonel Vincent took the Directors through the Packard Motor Car Company's assembly plant, proving grounds, and jet engine plant. Following this tour, Colonel Vincent entertained the group at dinner at the Detroit Athletic Club.

WHAT IS YOUR QUESTION?

One of my sons is color blind. Can you tell us whether any standards work has been done on color blindness?

Work done at the National Bureau of Standards to determine what shade of red and green can be most easily distinguished by color blind individuals was used in developing an American War Standard Safety Color Code for Marking Physical Hazards. The shades of red, green, and yellow to be used in marking physical hazards are defined in this standard. The American Standard developed originally in 1927 on traffic lights also defined the shades of red and green that would be most easily distinguished. The American Standard Adjustable Face Traffic Signal Head Standards, D10.1-1951, now gives this information for use by traffic authorities.

This standard also emphasizes the importance of a uniform position of the different colors in traffic signals, for example, the red lens should always appear at the top of the signal, the yellow in the center, and the green below.

How can we keep our set of American Standards up-to-date?

At one- or two-month intervals ASA sends out a list of new and revised American Standards that have become available during that period. You may ask to have your name added to the list to receive these announcements.

Can you tell us whether standards or draft standards have been issued by your association for the hydraulic controls of machine tools? If not, are studies being made?

No American Standard for Hydraulic Controls for Machine Tools has as yet been developed, nor has work yet been undertaken for development of such standards. However, hydraulic standards for industrial equipment have been prepared by the Joint Industry Conference. This work was done with the cooperation of the Hydraulic Equipment Manufacturers, Hydraulic Press Manufacturers, Industrial Equipment Users, National Machine Tool Builders' Association, Resistance Welder Manufacturers Association, and Tubing and Fitting Manufacturers.

What is the status of the work on Drawing and Drafting Room Practice?

The 1946 edition of the American Standard Drawing and Drafting Room Practice has been under revision for several years. It is a huge task involving coordination over a broad field of work. The new edition will be a large and complete manual.

Professor R. D. Hoelscher, University of Illinois, Urbana, Illinois, is chairman of Committee Y14 that is working on the revision.

Standards From Other Countries

Members of the American Standards Association may borrow from the ASA Library copies of any of the following standards recently received from other countries. Orders may also be sent to the country of origin through the ASA office. The titles of the standards are given here in English, but the documents themselves are in the language of the country from which they were received. For the convenience of our readers, the standards are listed under their general UDC classifications.

362.11 Hospital. Infirmary

Hungary	***MNOSZ***
Four standards for doctors' different gowns and caps	4179, 4180, 4185, 4189
Poland	***PN***
Eight standards for hospital linen	series Z-77000
Sixteen standards for hospital furniture	series Z-78000

542 Experimental Chemistry

Poland	***PN***
Three standards for test tube holders	Z-65310,-65323, 65363
Twelve standards for laboratory glassware	series C-1300
United Kingdom	***BS***
Sugar flasks	675:1953
Flasks with graduated necks	676:1953
Glass filter funnels	1923:1953
Ostwald-Folin pipettes	773:1953
Microchemical apparatus	1428 (over-all title and no.)
Halogens and sulphur, combustion train (micro-grote)	1428:Part A4:1953
Nitrogen determination apparatus (micro-kjeldahl)	1428:Part B1:1953
Crucibles for microchemical analysis	1428:Part E1:1953
Combustion boats, sheath and contact stars for microchemical analysis	1428:Part H1:1953
Dispensing measures for pharmaceutical purposes (Imperial units)	1921:1953
Dispensing measures for pharmaceutical purposes (metric units)	1922:1953

621.3 Electrical Engineering

Belgium	***NBN***
Cable and wire sweating lugs	30
Rules for construction of explosion-proof housings for electric apparatus	286
Color code for designation of fixed resistors	295
Series of recommended values and tolerances for resistors and capacitors	296
Canada	***CSA***
Construction and test of weatherproof wires, types WP and NWP	C22.2 No. 100-1953
France	***NF***
Permissible deviations from basic rules for electrical installations of first category	Cir.C 11
Germany	***DIN***
Table of several types of safety devices for transformers	40050
Carbon brushes	43004
Chock valve for transformers	42560
Instrument transformers, series 0.5-220 kv	42600/1
Cable branching clamps	47670
Fixed fuses up to 20 w	41400
Israel	***SI***
Domestic electric heating and cooking appliances	72
Netherlands	***V or N***
Lead-acid starting batteries. Method of test	V 968
Transformer- and switchgear oil	V 1043
Regulations for the installation of lightning conductors	N 1014
Instructions for installation of telecommunication systems	N 1065
Television glossary	N 1072
Electro-acoustics. Definitions. Characteristics	V 1079
Poland	***PN***
Insulating material	E-05001
Electrical installation in movies	E-05053
Storage batteries	E-06070
Lineman's climbers	E-55000
Two standards for lamp sockets: screw- and bayonet-type	E-93401/2
AM radio amplifiers	T-05200
Telephone line busters	T-83210
Five standards for telecommunication	T-90000/1, 90004, 92060/1
South Africa	***SABS***
Standard specification for fixed electric storage water heaters	151-1952
United Kingdom	***BS***
Radio-interference suppression for motor vehicles and internal combustion engines	833:1953
Visual indicator lamps	1050:1953
Copper for electrical purposes, sheet and strip	1432:1953
Vitreous-enamelled steel reflectors for use with mercury electric discharge lamps	1950:1953
Thermosetting synthetic-resin bonded-paper round tubes for use at radio frequencies	1951:1953

621.43.04 Ignition Devices and Methods

South Africa	***SABS***
Government purchasing specification for spark plugs	289-1951
United Kingdom	***BS***
Sparking plugs	45:1952

621.7 Workshop Practice

Germany	***DIN***
Forged steel pieces, allowances	7524
Forged seamless steel bushings	7527
Forged steel pieces. Handling and delivery	7528
Hungary	***MNOSZ***
Surface finish, rules and symbols	4721, 4722

622 Mining

Germany	***DIN***
Brake shoes for electric mining locomotives for 1435 mm and 900 mm track gage	37106,37107
Journal box of mining truck	20553,Bl.4
Miners' belts	23308
Miners' tool holders	20153
Valves for compressed air lines	20005
Bow saws for use in mining	20142
Steel used in mining shafts	21540
Water drawing bucket	21184
Hungary	***MNOSZ***
Nine standards for miners' tools	606, 608/9, 614, 627/8, 669/70, 672
Miners' hammers	2001
Bow saw used in mines	2002
Carbide lamp burner	3022
Eighteen standards for oil drilling pipes and fittings	3155-3172
Six standards for "Pennsylvanian" drilling method	3185-3190
Two standards for coupling for well drilling pipes	5121, 5122
Poland	***PN***
Twenty-two standards for air piping in mines	G-43330-36; -43340-43345; -43350-58
Tips for pneumatic hammers	G-56305

625.2 Railway Rolling Stock

France	***NF***
Nomenclature of motor driven railway cars	F 02-043
Germany	***DIN***
Railway car cap-head bolts	25197
Fittings for railway piping	1565/7/8/9
Different rolled shapes used in railway coach construction	25511
Steel fittings for railway piping	1566
Poland	***PN***
Brake shoes	K-91241/3, 91247

629.11 Land Vehicles. Transport Engineering

France	***NF***
Axle brackets for hand-trucks	E 52-206
Germany	***DIN***
Motorcycle tires, sizes 26x 2.00; 26x2, 25; 26x2, 50 in.	7801
Automobile wheel rims 20 in. and 22 in.	7828, B.1, 2
Connector for heat circulating hose	7846
Coupling frame and hook for tractors	9672
Lead-acid batteries for starting, lighting and ignition	72311, B.7
Single-cylinder compressor of air-brake	74272
Coupling head for air-brake line	74294

Nuts, spring washers and bolts for automobile wheels 74361
Gasoline stop cocks 71401, Bl.1
Diagram of central lubricating system on motor cars 71420
Air-tight packing of central lubricating system 71425
Command wire ropes and fittings 71986/7
Distributor coupling 72542
Seven-prong plug and receptacle for busses 72577
Connecting block for lighting system 72586
Spotlight mounting 72605
Foot-rest 74071
Front fork of motorcycle 74095
Diagram of motor-car air-brake system 74270
Motorcar air-brake, details 74295
Spoke nipples of motorcycle and motorcar wheels 74371
Hollow nipples for light motor car piping 7623, 7624
Rubber tires for motorcycles 7801
Gages for checking profile of rims 7830
Standard name plate for motorcars and trailers 74063
Compression springs for motorcar and motorcycle wheels 74096
Saddles for motor cyclist and passengers 74074, Bl.2
Rear rack of tractor for attaching agriculture implements 9670
Fuel injecting pumps for Diesel motors 73365, Bl.4
Ignition plugs for Diesel motors 72520
Fuel tank fill cap 73400
Stop and tail lights 72623, Bl.1
Two-cylinder compressor for pneumatic brakes 74273
Compressed air hose clamp 74306
Instructions regarding pneumatic brakes of trailers 74307
Brake shoes of aluminum alloy 74309
Oil pump for central lubricating system 71422, Bl.2
Pneumatic tires for motorcycle and side cars 7802
Two types of angle ball joints 71801/5
Spot light with rotary mounting 72609
Pneumatic brakes, general 74271
Freight train brake valve 74285
Different fittings for motor car tubings 7611, 7622, 7627
Oil filter for Diesel motors 73358
Ball sockets 71804
Bolts with threaded dog 71753
Lubricating nipples 71412
Four standards for different motorcar rims 7818, 7833/4, 7835
Storage battery cable clamps 72331/2
Fuel filter for Diesel motors 73358, Bl.1
Ball joints and studs 71802/3
Brake shoes 74308
Handlebars for bicycles 79351

Poland ***PN***

Seven standards for bicycle parts S-46056;-46068/9;-46086;-46122;-46140;-46152
Two standards for high tension ignition system terminals S-76024;-76032
Terminology of component parts of pneumatic tires S-91010
Three standards for bicycle parts S-46055, 46092, 46153
Three standards for electrical installation on automobiles S-76025, 76086, 76089

658.5 Internal Organization. Production Control. Shop Management

Chile ***INDITECNOR***

Statistical quality control 2.5-2

Netherlands ***(Temporary) V***

Standardized method of job evaluation, Part I: Viewpoints—Part II: Grading tables 3000
Standardized method of job evaluation, Part III: Examples of job description and grading 3001

661 Chemical Products in the Narrower Sense

Hungary ***MNOSZ***

Magnesium sulfate, technical 908
Phthalic acid, technical 923
Sodium sulfate, technical 925
Glauber salt, technical 926
Sodium sulfite, technical 960
Sodium formaldehyde 961
Hydrosulfite, technical 962
Zinc sulfate, technical 973
Iron sulfate, technical 1012
Aluminum sulfate, technical 1013
Formalin, technical 1631
Solvents 1636

Poland ***PN***

Twenty standards for different organic and inorganic products C-80000;-007;-014;-83003;-010;-017;-039;-84008;-032;-039;-041;-042;-044;-046/7/8;-053;-061/2/3
Sulfuric acid C-84058
Sodium chlorate C-84064
Six standards for different reagents C-80040/7, 80501/2, 83005, 83020

Spain ***UNE***

Hydrochloric acid; Table of different solutions 30026

664.3 Edible Fats and Oils

Mexico ***DGN***

Peanut oil F-27

Spain ***UNE***

Grinding of olives 34305/6

665.3 Vegetable Oils, Fats and Waxes

Hungary ***MNOSZ***

Four standards for different tests of vegetable oils 333, 361/3
Twelve standards for different tests of vegetable oils 3631, 3639, 3666, 3670, 3671, 3695, 3730, 3732, 3733, 3734, 3735, 3777

Netherlands ***(Temporary) V***

Cacao butter and refined cacao butter 1229

668.1 Soap Industry

India ***I. S.***

Sodium silicate for soap industry 381

United Kingdom ***BS***

Carbolic soap 1910:1953
Genuine hard soap 1911:1953
Soap flakes 1912:1953
Soft soap 1913:1953
Toilet soap 1914:1953

669 Metallurgy

Belgium ***NBN***

Determination of carbon content in iron, steel and cast iron (colorimetric method) 290
Determination of sulfur content in iron, steel, cast iron and alloys (gravimetric method) 291
Steel for mechanical constructions 253

Canada ***CSA***

Specification for heavy steel shaft forgings G38-1953

Czechoslovakia ***CSN***

Scrap iron and steel 1441
Carbon steel for engineering purposes 1511

Germany ***DIN***

Zinc alloys 1743
Tensile strength test of fillet welds 50126
Testing of buttwelds of steel plates 50121
Lead-zinc bearing metals 1703
Aluminum alloy sheets 1783/4

Hungary ***MNOSZ***

Chemical analysis of metals. Sampling 60
Different mechanical tests of metals 104/5
Nine standards for special shapes used in motor vehicle construction 1231-1240
Rules for delivery and acceptance of iron and steel 2591
Non-alloy tool steel 4354
Thirteen standards for chemical tests for metals 5100-5110, 5114, -17
Five standards for mechanical tests of metals 5702-5706

India ***I.S.***

High tensile brass ingots and castings 304
Aluminum bronze ingots and castings 305

Israel ***SI***

Cast iron castings 67

Italy ***UNI***

Microscopical examination of non-ferrous metals. Preparation of test pieces of aluminum and aluminum alloys. List of reagents 3250/1

Japan ***JIS***

Iron wire for manufacturing nails *for export* G 3529
Copper rounds H 3501
Aluminum strips H 4121

Mexico ***DGN***

Brass ingots and castings B-49

Netherlands ***(Temporary) V***

Structural steel 1035

New Zealand ***NZSS***

Standard specification for electro-deposited metal coatings of copper, tin and lead 916, Oct 1951

Poland ***PN***

Ferro-molybdenum H-04208
Creep test of steel H-04331
Hardness tests of metals H-04356, 04360

Spain ***UNE***

I-beams 36523
Angles, equal 36531
Tees, equal 36533
Circular segments (for hand rail) 36544
Common steel 36083
Half-round steel bars 36545

Steel, common, general 36080
Bessemer steel, common 36081
Martin-Siemens steel, common 36082

United Kingdom **BS**

Free machining brass rods and sections 249:1953
Aluminum filler alloys for brazing 1942:1953
Copper-silicon alloy rods, sections and forgings for general engineering purposes 1948:1953
60/40 brass rods, sections and forgings for general engineering purposes 1949:1953
One percent chromium steel castings (abrasion resisting) 1956:1953

672 Articles of Iron and Steel

France **NF**

Masons' troughs E 78-052

Germany **DIN**

Cans for preserved foodstuff 2019/20
Roller chains 654, Bl.1, 2
Links of steel roller chains 654, Bl.3
Different tins for preserved foodstuff, metal containers for candies, etc 2018, 2041, 2043, 2047/8

Hungary **MNOSZ**

Six standards for enamelware 3411-3416

Japan **JIS**

Household sewing machine needles B 9012
Metal cigarette cases *for export* Z 6201
Cigarette lighters *for export* Z 6202

Poland **PN**

Five standards for different kitchen wares M-77038;-123;-171;-323;-361
Two standards for steel cloth lockers M-78018/9
Five standards for steel letter and figure stamps N-57140/4
Galvanized pitchers M-77316

674 Wood Industry

Canada **CSA**

Specification for Douglas fir plywood and western softwood construction plywood 0121-1953

Germany **DIN**

Form and dimensions of wood working cutters 8082

Poland **PN**

Pick-axe handles B-59039
Seven standards for different wooden packing cases D-79602, 79611, 79631, 79641, 79643, 79652, 79654

South Africa **SABS**

Standard specification for grade "A" wooden boxes for eggs 347-1952

676 Paper Industry

Denmark **DS**

Paper sizes, trimmed 910
Paper sizes, mill sizes 911

Hungary **MNOSZ**

Three standards for paper testing 5354, 5356, 5364

Poland **PN**

Fourteen standards for paper and paper products P-95003, 95005/6, 95013, 95501, 95601/3, 95703, 95803, 96001, 96004/5, 97301

Spain **UNE**

Letter envelope, dimensions 1048

677 Textile Industry

Belgium **NBN**

Determination of shrinkage of fabrics in washing 285

Hungary **MNOSZ**

Two standards for determination of yarn count 3205, 3218

United Kingdom **BS**

Shrinkage of knitted fabrics and garments containing wool 1955:1953

678 Rubber Industry

Hungary **MNOSZ**

Eleven standards for different rubber products such as sheets, bands, rings, cords, etc 1670-1681

Japan **JIS**

Thin rubber sheets for sanitary or medical use Z 4701
Hot water bottles Z 4702
Ice bags Z 4703/4
Invalids' air cushions Z 4705
Nipples Z 4706
Caps for eye-lotion syringes Z 4709/10
Three standards for canvas and rubber shoes and boots *for export* Z 6516/7/8
Erasers *for export* Z 6610

New Zealand **NZSS**

Standard code of practice for the repairing, recapping, and retreading of tires CP 1, May 1952

Poland **PN**

Three standards for rubber products C-04215, 04231, 04236

United Kingdom **BS**

Rubber sealing rings for domestic preserving jars for fruit and vegetables 1169:1953

681.2 Instrument Making

Germany **DIN**

Truck scales 1926, Bl.3
Pointer for round indicating instruments 16100
Flush-mounted indicating instruments 16280

Poland **PN**

Nine standards for different calipers, depth gages, etc M-53131; -133/4/5;-141/2/3;-166/7

685.31 Boots and Shoes

New Zealand **NZSS**

Standard specification for slippers 897, Apr. 1952

South Africa **SABS**

Standard specification for threads for footwear 304-1951
Standard specification for men's heavy boots (sewn, riveted, screwed, and stitched) 319-1952
Standard specification for men's heavy boots (goodyear welted army type) 320-1952
Standard specification for men's medium boots (goodyear welted) 321-1952

69 Building Industry and Trades. Building Construction

Austria **ÖNORM**

Estimate of cost of building based on unit prices B 2111

New Zealand **NZSS**

Standard code of practice for methods of measurement of building works 670, Aug 1951

Poland **PN**

Module for industrial structure B-02351
Asbestos-cement boards B-14040

United Kingdom **BS**

Code of functional requirements of buildings, Chapter 5, Loading CP 3—Chapter 5 (1952)
Bitumen felt roof coverings CP 144.101 (1952)
Mastic asphalt roofing CP 144.201 (1952)
Sanitary appliances CP 305 (1952)
Open fires, heating stoves, and cookers burning solid fuel CP 403 (1952)
Mechanical refrigeration CP 406 (1952)

Cast-Iron Pipe

(*Continued from page* 170)

Metal Molds, for Water or Other Liquids, A21.6-1953
Cast-Iron Pipe Centrifugally Cast in Metal Molds for Gas, A21.7-1953
Cast-Iron Pipe Centrifugally Cast in Sand-Lined Molds, for Water or Other Liquids, A21.8-1953
Cast-Iron Pipe Centrifugally Cast in Sand-Lined Molds for Gas, A21.9-1953
Short Body Cast-Iron Fittings, 3 Inch to 12 Inch, for 250-PSI, Water Pressure Plus Water Hammer, A21.10-1952
A Mechanical Joint for Cast-Iron Pressure Pipe and Fittings, A21.11-1953

Work on these specifications began in 1926. At that time there were in use, in addition to specifications of various cities, the following specifications in the same field:

1908 Specifications of the American Water Works Association, covering pit cast pipe and special castings (fittings).

1902 Specifications of the New England Water Works Association, also covering pit cast pipe and special castings.

In 1931, there were issued and came into general use the 1931 Federal Specifications, WW-P-421, covering (*a*) various types of pipe made by the centrifugal process, (*b*) certain pipes poured horizontally, through multiple gates, and (*c*) a bolted-joint pipe ("Universal") with machined metal-to-metal joint.

Announcing New Books . . . .

• **Fire Service Ladders.** By Roi B. Woolley. (Case-Shepperd-Mann Publishing Corporation. $2.00.)

"Ladders used by the fire service, because of the nature of the work they must perform and the life hazards involved, should measure up to the most exacting standards of quality and material used, and workmanship." This is quoted from the new publication, *Fire Service Ladders*, guide for care and handling of ladders used in fire prevention work. Because of the high grade of performance required of fire ladders, the requirements for ordinary ladders are not sufficient, the publication comments. Only ladders of approved types built by recognized fire apparatus and equipment manufacturers should be specified for fire service.

The booklet refers to the American Standard Safety Code for Wood Ladders as "excellent standards covering wood type ladders for general use." "Members of the fire service seeking some sound basis upon which to measure ladder quality and prepare specifications may rely upon this material. . . ."

• **The Science of Color.** (Committee on Colorimetry, Optical Society of America, T. Y. Crowell, New York, 1953. 385 + xiii pages, 6⅞ × 9¾ inches. 25 full-color plates, 102 graphs and diagrams, 40 numerical tables. $7.00.)

This is the definitive account of the science of color which the Committee on Colorimetry of the Optical Society of America has been preparing since 1932. It is, however, unique among authoritative works because it begins with a popular story—the use of color by prehistoric man, and its use in the color-conscious ages of Babylon, Egypt, Crete, Greece, and Rome. Color plates exhibit some of the finest uses of color by ancient man.

Succeeding chapters, too, carry the reader imperceptibly into increasingly technical but equally engrossing accounts of the philosophy of color; the anatomy and physiology of color vision; the psychology of color—first the sensory bases of color experience and then the interpretive and emotional effects that dominate our perceptions of color; the physical principles that underlie the occurrence of color; and finally the fruitful alliance—psychophysics—that has made possible the measurement and control of color.

Much of the confusion and controversy that has plagued color science is traced to lack of clear definitions and clear distinctions between terms, particularly for related ideas in the sciences of psychology, physics, and psychophysics. Perhaps the most important and permanent contribution of the *Science of Color* is the adoption and consistent use of a set of terms which make clear distinctions between similar concepts in these several sciences. A glossary-index provides an instant key to the essentials of this perfected terminology and to the discussions in the text of the need for and definitions of the terms. The terminology, definitions, and standards used are those established by American Standards Z58.1.1, Z58.1.2 on terminology and definitions for radiometry, photometry, and colorimetry, and Z58.7.1, Z58.7.2, Z58.7.3 on color measurement and specification. The substance of those standards is greatly expanded, however, by explanations and discussions of the reasons for and advantages of the decisions on which those standards were based, and by numerous illustrations, examples, tables, and diagrams which facilitate applications of the standards. The symbols established by American Standards Z10.4 and Z10.6 are used consistently throughout the book.

Every person interested in color, casually or professionally, in art, industry, or science will enjoy the panorama of the history of color, the development of its science, and the sense of growth of understanding and usefulness which results from reading the *Science of Color*.

This Month's Standards Personality . . .

Ephraim Freedman, Director of the Bureau of Standards of New York's great department store, R. H. Macy & Company, is one of the stalwarts back of the work on standards for consumer goods. For years Mr Freedman has talked and worked on behalf of standards to help Macy's and its customers know whether the goods they buy will give satisfactory service.

A graduate of Columbia University's College of Pharmacy and of Brooklyn Polytechnic Institute, he started his career by serving as a food and drug analyst and chemist until World War I engaged him as lieutenant in the Sanitary Corps.

After an eight-year whirl at production, plant construction, and development, he finally settled down at Macy's in 1927 and there started the Bureau of Standards of which he is director.

His interest in the technology back of the products his store sells led him into active association with many important technical societies, and to an active role in the American Standards Association. He has been president of the American Association of Textile Technologists, chairman of the New York Section of the American Institute of Textile Chemists and Colorists, and member of the Board of Trustees of the Textile Research Institute. He is now chairman of the Advisory Board of the Bedding Division of the New York State Department of Labor, member of the Executives' Committee, Textile Section, New York Board of Trade, as well as a member of such nationally and internationally recognized societies as the American Society for Testing Materials, the American Institute of Chemists, the American Chemical Society, the National Society of Professional Engineers, the American Pharmaceutical Association, and the National Retail Dry Goods Association.

Mr Freedman is now lending his experience and philosophy to the solution of problems in connection with development of American Standards for consumer goods. Since 1937 he has been a member of the ASA group working on this problem. He is First Vice-Chairman of this committee, now known as the Consumer Goods Standards Board. Mr Freedman is chairman of a "Program of Work" committee which is studying projects now under way under the supervision of the Board and the possible need for other new projects. He is also a member of the Standards Mark Committee which is developing an ASA policy on certification procedures.

When he can find a few hours away from his duties at Macy's and from the societies of which he is a member, he indulges in his hobbies—golf and fishing.

AMERICAN STANDARDS

Status as of May 20, 1953

Legend

Standards Council — Approval of Standards Council is final approval as American Standard; usually requires 4 weeks.

Board of Review—Acts for Standards Council and gives final approval as American Standard; action usually requires 2 weeks.

Standards Boards—Approve standards to send to Standards Council or Board of Review for final action; approval by standards boards usually takes 4 weeks.

Arbitration

In Miscellaneous Standards Board—

Commercial Arbitration, Standards for
Submitted by: American Arbitration Association

Building and Construction

American Standards Published—

Building Brick (Solid Masonry Units Made from Clay or Shale), Specifications for, ASTM C62-50; A98.1-1953 $0.25

Facing Brick (Solid Masonry Unit Made from Clay or Shale), ASTM C216-50; ASA A99.1-1953 $0.25

Sponsor: American Society for Testing Materials

American Standards Approved—

Hollow Non-Load-Bearing Concrete Masonry Units, Specifications for, ASTM C129-52; ASA A80.1 (Revision of ASTM C129-39; ASA A80.1-1942)

Hollow Load-Bearing Concrete Masonry Units, Specifications for, ASTM C90-52; ASA A79.1 (Revision of ASTM C90-44; ASA A79.1-1944)

Sponsor: American Society for Testing Materials

Chemical Industry

American Standard Published—

Spirits of Turpentine, Specifications for, ASTM D13-51; ASA K32.1-1953 $0.25

In Miscellaneous Standards Board—

Method of Test for Toluene Insoluble Matter in Rosin, ASTM D269-52; ASA K21.1. (Revision of ASTM D269-30; ASA K21.1-1936)

Sponsor: American Society for Testing Materials

Consumer

American Standards Approved—

Ordinary Bar Soap, Specifications for, ASTM D497-52; ASA K60.2-1953 (Revision of ASTM D497-39; ASA K60.2-1949)

Palm Oil Chip Soap (Type A, Straight-Type B, Blended), Specifications for, ASTM D536-52; ASA K60.16-1953 (Revision of ASTM D536-42; ASA K60.16-1949)

Sponsor: American Society for Testing Materials

Electrical

American Standards Published—

Code for Protection Against Lightning, C5.1-1953 (Part I); C5.2-1953 (Part II); C5.3-1953 (Part III) (Revision of C5.1-1937; C5.2-1937; C5.3-1944) $0.40
The three parts of this Code are published as a single document, and contain rules for protection against lightning of persons (Part I); buildings and miscellaneous property (Part II); and structures containing flammable liquids and gases (Part III)

Sponsors: American Institute of Electrical Engineers; National Bureau of Standards; National Fire Protection Association

Hard-Drawn Aluminum Wire for Electrical Purposes, Tentative Specifications for, ASTM B230-52 T; ASA C7.20-1953 $0.25

Concentric-Lay-Stranded Aluminum Conductors, Hard-Drawn, Specifications for, ASTM B231-52; ASA C7.21-1953 $0.25

Rolled Aluminum Rods (EC Grade) for Electrical Purposes, Specifications for, ASTM B233-52; ASA C7.23-1953 $0.25

Aluminum Bars for Electrical Purposes (Bus Bars), Tentative Specifications for, ASTM E14-51 T; ASA Z30.2-1953 $0.25
Combines aluminum bars for use as electrical conductors (bus bars). Two classes of bars in 3 tempers are specified as well as 4 types of rectangular bars.

Thermal Analysis of Metals and Alloys, Tentative Recommended Practice for, ASTM E 14-51 T; ASA Z30.2-1953 $0.25

Standard Weight Zinc-Coated (Galvanized) Steel Core Wire for Aluminum Conductors, Steel Reinforced (ACSR), Tentative Specifications for, ASTM B 245-52 T; ASA C28-1953 $0.25

Sponsor: American Society for Testing Materials

Proposed American Standards Published—

Fluorescent Lamp Starters, Specifications for, C78.180 $0.35

Fluorescent Lamp Starters, Method of Testing, C78.181 $0.35

Fluorescent Lamp Ballasts, Specifications for, C82.1 $0.35

American Standards Approved—

Copper Trolley Wire, Specifications for, ASTM B 47-52; ASA C7.6-1953 (Revision of ASTM B 47-49; ASA C7.6-1951)

Sponsor: American Society for Testing Materials

Direct-Acting Electrical Recording Instruments, Switchboard and Portable, C39.2-1953

Sponsor: Electrical Standards Committee

Dimensional Characteristics of Electron Tubes (RMA ET-105-A; NEMA 502-A) ASA C60.2-1953 (Revision of ASA C60.2-1949)

Sponsor: Joint Electron Tube Engineering Council

In Electrical Standards Board—

Silk-Covered Round Copper Magnet Wire, C9.3 (Revision of C8.6-1936)

Enamel-Coated Round Copper Magnet Wire, C9.1 (Revision of C8.7-1936)

Nylon Fibre-Covered Round Copper Magnet Wire, C9.4

Cotton-Covered Round Copper Magnet Wire, C9.2 (Revision of C8.5-1936)

Sponsor: National Electrical Manufacturers Association

Reaffirmation Approved—

American Standard for Automatic Station Control, Supervisory and Telemetering Equipments, C37.2-1945 R 1953

Sponsor: Electrical Standards Board

Fuels

In Miscellaneous Standards Board—

Definition of Terms, Gross Calorific Value and Net Calorific Value of Fuels, ASTM D 407-44; ASA Z67.1

Sponsor: American Society for Testing Materials

Materials and Products

In Board of Review—

Copper and Copper Base Alloy Forging Rod, Bar, and Shapes, ASTM B124-52; ASA H7.1 (Revision of ASTM B124-51; ASA H7.1-1953)

Free-Cutting Brass Rod and Bar for Use in Screw Machines, ASTM B16-52; ASA H8.1 (Revision of ASTM B16-51; ASA H8.1-1953)

Seamless Copper Pipe, Standard Sizes, ASTM B42-52; ASA H26.1 (Revision of ASTM B42-51; ASA H26.1-1953)

Seamless Red Brass Pipe, Standard Sizes, ASTM B43-52; ASA H27.1 (Revision of ASTM B43-51; ASA H27.1-1953)

Bronze Castings in the Rough for Locomotive Wearing Parts, ASTM B66-52; ASA H28.1 (Revision of ASTM B66-49; ASA H28.1-1953)

Car and Tender Journal Bearings, Lined, ASTM B67-52; ASA H291 (Revision of ASTM B67-49; ASA H29.1-1953)

Rolled Copper-Alloy Bearing and Expansion Plates and Sheets for Bridge and Other Structural Uses, ASTM B100-52; ASA H31.1 (Revision of ASTM B100-49; ASA H31.1-1953)

Brass Wire, ASTM B134-52; ASA H32.1 (Revision of ASTM B134-51; ASA H32.1-1953)

Leaded Red Brass (Hardware Bronze) Rod, Bar, and Shapes, ASTM B140-52; ASA H33.1 (Revision of ASTM B140-52; ASA H33.1-1953)

Sponsor: American Society for Testing Materials

Mechanical

American Standards Published—

Machine Tapers, Self-Holding and Steep Taper Series, B5.10-1953 $1.00

Involute Spline and Serration Gages and Gaging, B5.31-1953 $1.25

Sponsors: Metal Cutting Tool Institute; Society of Automotive Engineers; National Machine Tool Builders' Association; The American Society of Mechanical Engineers

Plain Washers, B27.2-1953 $1.00

Sponsors: Society of Automotive Engineers; The American Society of Mechanical Engineers

American Standard Approved—

Supplement No. 1 to American Standard Code for Pressure Piping, B31.1a-1953

Sponsor: American Society of Mechanical Engineers

In Mechanical Standards Board—

Small Solid Rivets, B18.1 (Revision of American Standard Small Rivets, B18a-1927; and Tinners', Coopers' and Belt Rivets, B18g-1929)

Sponsors: Society of Automotive Engineers; The American Society of Mechanical Engineers

Optics

American Standard Published—

Nomenclature and Definitions in the Field of Colorimetry, Z58.1.2-1952 $0.50

In Miscellaneous Standards Board—

Nomenclature for Radiometry and Photometry, Z58.1.1

Sponsor: Optical Society of America

Paints and Varnishes

In the Miscellaneous Standards Board—

Specific Gravity of Pigments, Methods of Test for, ASTM D153-52; ASA K41 (Revision of ASTM D 153-39; ASA K41-1939)

Sponsor: American Society for Testing Materials

Mass Color and Tinting Strength of Color Pigments, Method of Test for, ASTM D 387-52; ASA K57 (Revision of ASTM D387-36; ASA K 57-1941)

Sponsor: American Society for Testing Materials

Photography

In Board of Review—

Dimensions for Photographic Paper Rolls, PH1.11 (Revision of Z38.1.5-1943 and partial revision of Z38.1.6-1943)

Dimensions for Photographic Paper Sheets, PH1.12 (Partial revision of Z38.1.6-1943 and revision of Z38.1.43-1947)

Contact Printers, Specifications for, PH3.8 (Revision of Z38.7.10-1944)

Masks (Separate) for Use in Photographic Contact Printing of Roll Film Negatives, Specifications for, PH3.9 (Revision of Z38.7.12-1944)

Stereo Still Pictures on 35-Millimeter Film (5-Perforation Format), PH3.11

Attachment Threads for Lens Accessories, Specifications for, PH3.12 (Revision of Z38.4.12-1944)

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Photographic Grade Blotters, PH4.10

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Photographic Grade Ammonium Sulfate $(NH_4)_2SO_4$, Specifications for, PH4.184

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In Miscellaneous Standards Board—

Method for Determining the Relative Photographic Efficiency of Illuminations, PH2.3

Method for Determining Exposure Guide Numbers for Photographic Lamps, PH2.4

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Pipe and Piping

American Standards Published—

Cast Iron Pit Cast Pipe for Water or Other Liquids, Specifications for, A21.2-1953; AWWA C102-53 (Revision of AS A21.2-1939) $0.45

Cement Mortar Lining for Cast Iron Pipe and Fittings, Specifications for, A21.4-1953; AWWA C104-53 (Revision of A21.4-1939) $0.35

Cast Iron Pipe Centrifugally Cast in Metal Molds for Water or Other Liquids, Specifications for, A21.6-1953; AWWA C106-53 $0.40

Cast Iron Pipe Centrifugally Cast in Sand-Lined Molds for Water or Other Liquids, A21.8-1953; AWWA C108-53 $0.45

A Mechanical Joint for Cast Iron Pressure Pipe and Fittings, Specifications for, A21.11-1953; AWWA C111-53 $0.35

Sponsors: American Gas Association; American Society for Testing Materials; American Water Works Association; New England Water Works Association

Rubber

In Miscellaneous Standards Board—

Methods of Sample Preparation for Physical Testing of Rubber Products, ASTM D15-52 T; ASA J1.1 (Revision of ASTM D 15-41; ASA J1.1-1942)

Method of Tension Testing of Vulcanized Rubber, ASTM D 412-51 T; ASA J2.1 (Revision of ASTM D 412-41; ASA J2.1-1942)

Method of Test for Accelerated Aging of Vulcanized Rubber by the Oxygen-Pressure Method, ASTM D 572-52; ASA J4.1 (Revision of ASTM D 572-48; ASA J4.1-1949)

Method of Test for Accelerated Aging of Vulcanized Rubber by the Oven Method, ASTM D 573-52; ASA J5.1 (Revision of ASTM D 573-48; ASA J5.1-1949)

Sponsor: American Society for Testing Materials

Safety

American Standard Published—

Practice for Street and Highway Lighting, D12.1-1953 $0.50

Sponsor: Illuminating Engineering Society

In Safety Standards Board—

Private Residence Elevators, Safety Code for, A17.1.5

Sponsors: American Institute of Architects; National Bureau of Standards; American Society of Mechanical Engineers

Textiles

American Standards Approved—

Definitions of Terms Relating to Textile

Materials, ASTM D123-52; ASA L14.12-1953 (Revision of ASTM D123-50; ASA L14.12-1951)

Sponsors: American Society for Testing Materials; American Association of Textile Chemists and Colorists

In Board of Review—

Methods of Testing and Tolerances for Cotton Yarns (Revision of ASTM D180-52T; ASA L14.13-1951)

Methods of Test for Asbestos Yarns (Revision of ASTM D299-52T; ASA L14.18-1951)

Methods of Testing and Tolerances for Certain Wool and Part Wool Fabric (Revision of ASTM D462-52; ASA L14.28-1949)

Methods of Testing and Tolerances for Single Jute Yarn (Revision of ASTM D541-52; ASA L14.34-1951)

Methods of Testing Woven Asbestos Cloth (Revision of ASTM D577-52; ASA L14.35-1949)

Methods of Test for Clean Wool Content of Wool in the Grease (Revision of ASTM D584-52T; ASA L14.40-1951)

Methods of Testing Asbestos Tubular Sleeving (Revision of ASTM D628-52; ASA L14.41-1949)

Methods of Testing and Tolerances for Jute Rove and Plied Yarn for Electrical and Packing Purposes (Revision of ASTM D681-52; ASA L14.44-1949)

Methods of Testing and Tolerances for Rope (Leaf and Bast Fibers) (Revision of ASTM D738-52; ASA L14.45-1949)

Methods of Testing and Tolerances for Spun, Twisted or Braided Products Made from Flax, Hemp, Ramie, or Mixtures Thereof (Revision of ASTM D739-52; ASA L14.46-1949)

Recommended Practice for Universal System of Yarn Numbering (Revision of ASTM D861-52; ASA L14.48-1951)

Methods of Test for Small Amounts of Copper and Manganese in Textiles (Revision of ASTM D377-52T; ASA L14.49-1949)

Sponsors: American Society for Testing Materials; American Association of Textile Chemists and Colorists

In Standards Board—

Methods of Testing Felt (Revision of ASTM D461-50; ASA L14.52-1951)

Sponsors: American Society for Testing Materials; American Association of Textile Chemists and Colorists

What's New on American Standard Projects

Commercial Arbitration—

Following a canvass of trade associations and chambers of commerce, a proposed American Standard for Commercial Arbitration is now before the Miscellaneous Standards Board. The proposal was submitted to ASA by the American Arbitration Association and consists of standards prepared by the Association. The standards are based on experience of the Association, of the Inter-American Commercial Arbitration Commission, and of the Canadian-American Commercial Arbitration Commission, as well as interpretation of arbitration laws by several Federal and State courts.

In presenting the proposed American Standard to the Miscellaneous Standards Board, the ASA staff has expressed the opinion that it does not infringe on the contractual relations of the arbitrating parties, but that it is a procedural standard to be followed in the event of breach of contract.

The Board is being asked to vote on approval of the proposed American standards for Commercial Arbitration under the existing standards method. It is also being asked whether ASA should invite the American Arbitration Association to accept proprietary sponsorship for future revisions of the standard.

Safety Code for Elevators, A17—

Sponsors: American Institute of Architects; National Bureau of Standards; American Society of Mechanical Engineers

Safety recommendations for elevators used in private residences are covered in a new Section 5 of the American Standard on Elevators, Dumbwaiters, and Escalators, A17.1-1937. The new section has been submitted to ASA for approval. It is intended to publish it separately as A17.1.5 with the understanding that when American Standard A17.1-1937 is next revised this new section will be incorporated as part of the standard.

The committee is now actively at work revising other sections of the 1937 edition.

Safety Code for Walkway Surfaces, A22—

Sponsors: American Institute of Architects; American Society of Safety Engineers

Should this committee be discontinued or should some action now be taken to expedite development of safety standards for walkway surfaces and general industrial stairs? This is the question to be considered by a committee being appointed by the Safety Standards Board of the American Standards Association.

Safety Code for Window Cleaning, A39—

Sponsor: National Safety Council

Now that research on safety belts has been completed by the National Safety Council, work is being started on a revision of the 1933 edition of the American Standard Safety Code for Window Cleaning. First meeting of the reorganized committee was held March 24 to start work on the revision.

Masonry Shapes—

Supplementing a number of American Standards on building shapes (A66-A84), the American Society for Testing Materials recently submitted additional standards on building bricks and facing bricks to ASA for approval. With these additional standards, the list of American Stand-

ards now quite completely covers masonry shapes used by the building industry. In this field, 20 ASTM standards have now been approved as American Standard. The new standards are Specifications for Building Brick (Solid Masonry Units made from Clay and Shale), ASTM C62-50; ASA A98.1-1953, and American Standard Specifications for Facing Brick (Solid Masonry Units made from Clay or Shale), ASTM C216-50; ASA A99.1-1953.

Small Tools and Machine Tool Elements, B5—

Sponsors: Metal Cutting Tool Institute; Society of Automotive Engineers; National Machine Tool Builders' Association; The American Society of Mechanical Engineers

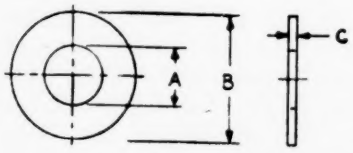
The committee has recommended that ASA arrange to participate actively in ISO Technical Committee 39 on Machine Tools. The recommendation is being referred to the Mechanical Standards Board for action.

Committee B5 has also recommended that ASA request ISO for official status in connection with the work of ISO/TC 32 on Spline Fits and Hubs.

Washers and Machine Rings, B27—

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

Copies of a proposed American Standard on Precision Washers are now being distributed for comment. The precision washers covered in the new proposal are intended for electrical apparatus and similar products where washers must be held more closely within the diameters specified. The proposal supplements the standard for general purpose plain washers approved in 1949.



Copies of the draft can be obtained by addressing D. M. Shackelford, Standards Administrator, The American Society of Mechanical Engineers, 29 West 39th Street, New York 18, N. Y.

Deep Well Vertical Pumps, B58—

Sponsor: American Water Works Association

The scope of this new project has been approved as: "The standardization of materials and dimensions for the head-and-driver assembly, the column-shaft assembly or conductor system, and the pump unit proper, of deep well vertical pumping equipment designed for lifting water at normal temperature from underground sources; and the standardization of capacity ratings for such pumping equipment."

Storage and Handling of Anhydrous Ammonia and Ammonia Solutions, K61—

Sponsor: Compressed Gas Association

At a meeting March 23 this sectional committee prepared a final draft of a safety code for the storage and handling of anhydrous ammonia and ammonia solutions. The draft is being voted on by letter ballot.

Institutional Textiles, L24—

Sponsor: American Hotel Association

Organization of this work is now well under way. A number of subcommittees are being organized to handle specific phases of the problem. These will cover Institutional Furnishings (window curtains, draperies, slip covers, upholstery, awnings, bedspreads, decorative comforter and pillow covers); Utility Textiles (table and napkin cloths, toweling — guest and utility, bath mats, shower curtains, blankets); Uniforms (for men and women); Work Clothes (overalls, coveralls, work shirts, work trousers; Administrative, Promotional, and Certification.

Drainage of Coal Mines, M6—

Sponsor: American Mining Congress

A meeting of the re-organized Sectional Committee on Drainage of Coal Mines was held at the Mellon Institute in Pittsburgh in February. The committee had before it recommendations for modifications in installation and operation of coal mine drainage systems prepared by engineers of the U.S. Bureau of Mines. Detailed study was given to this proposed draft. Modifications were suggested and recommendations made for preparation of a new draft. Methods to be followed in preparing another draft are now being studied by S. H. Ash, chairman of the sectional committee and Senior Engineer in the U.S. Bureau of Mines.

Cross Ties and Switch Ties, O3—

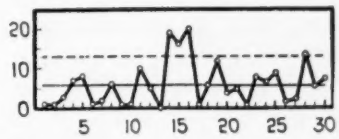
At a meeting of the committee March 17, it was decided to recommend withdrawal of the American Standard approved in 1926 and to discontinue the project. The committee recommended that Committee 3 on Ties of the American Railway Engineering Association study the problem presented by the proposed discontinuance of the American Standard, particularly because the AREA Specifications for Ties have for more than 25 years provided specifications for ties that are used by industries other than the railroads.

Refrigeration Nomenclature, Y53—

Sponsor: American Society of Refrigeratting Engineers

The membership of this reorganized committee has now been approved by the Graphic Standards Board. Gayle B. Priester, Consolidated Gas, Electric Light and Power Company of Baltimore, Maryland, is chairman of the committee; H. E. Farrer, American Standards Association, New York, is secretary.

The scope of the committee's work includes terms and definitions relating to principles, processes, and equipment in the refrigeration industry. It also includes graphical symbols where these are not included in existing standards.



Quality Control, Z1—

The American Society for Quality Control has accepted the invitation extended to it by the American Stand-

ards Association to be proprietary sponsor for the three standards dealing with the use of the quality control chart. These standards were approved by the ASA as American War Standards. They are Guide for Quality Control, Z1.1-1941; Control Chart Method of Analyzing Data, Z1.2-1941; and Control Chart Method of Controlling Quality During Production, Z1.3-1942.

The Society plans to make a canvass of interested groups to determine whether there is a national consensus in favor of having these American War Standards approved as American Standard under the regular ASA procedure.

Safety Colors—

The American Standards Association has made arrangements with the International Organization for Standardization for ASA to take part in work on Safety Colors being organized by the International Organization for Standardization. A number of ASA Sectional Committees are concerned with this subject, including Sectional Committee Z53 on Safety Color Code for Marking Physical Hazards, A13 on Scheme for the Identification of Piping Systems, and Z35 on Accident Prevention Signs.

Safety Code for Marking Physical Hazards, Z53—

Sponsor: National Safety Council

A report defining the colors used in the American Standard Safety Color Code is now before the sectional committee for approval. The report was submitted by the subcommittee on color definitions. Harry J. Keegan, Photometry and Colorimetry Section, National Bureau of Standards, is chairman of this committee. If the report is accepted, it will become Section 3 of a proposed revision of the 1945 edition of the Code.

Safety Code for Beta-Ray Sealed Sources—

A conference that included representatives of the Atomic Energy Commission and other organizations concerned with the use of x-rays and atomic energy has requested that the American Standards Association start work on safety standards for the industrial use of Beta-ray sealed sources. The conference was held on April 21. Discussions indicated that the standards would cover design, manufacture, installation, and use of Beta-ray sealed sources for industrial applications. The conference requested that ASA confer with the National Bureau of Standards, sponsor of the Sectional Committee on Safety Code for the Industrial Use of X-Rays, Z54, to determine whether quick action can be obtained if this work should be assigned to Committee Z54. Otherwise, it suggested that ASA initiate a new project to handle the subject.

Hazards to Children, Z66—

Sponsor: American Academy of Pediatrics

At its first meeting March 31, the committee authorized technical subcommittees to set up safety standards on the proper identification of non-toxic paints and on flammability of children's clothing.

While manufacturers of children's toys and furniture use non-toxic paints on their products, the New York City Health Department has reported a number of illnesses and deaths of children who have chewed paint. The committee brought out that poisoning from direct contact with painted surfaces generally involves objects which have been repainted in the home with paint not intended for the purpose.

The technical subcommittee to be appointed will determine which ingredients of paints are safe from a toxicological viewpoint. Labeling of paints as being "safe" will indicate that surfaces painted with these products, if chewed, should not cause poisoning by the paint.

The subcommittee which will investigate the question of flammability of children's clothing will make use of the existing American Standard Test Method for Flammability of Clothing Textiles.

Dr George M. Wheatly of the Metropolitan Life Insurance Company is chairman of the sectional committee and presided at the March 31 meeting. He is chairman of the American Academy of Pediatrics' Accident Prevention Committee.

After safety standards are developed, it is still of primary importance to educate parents and teachers to prevent hazards to children, pointed out Dr John H. Foulger, director of Medical Research of E. I. du Pont de Nemours & Company. Dr Foulger represents the National Paint, Varnish and Lacquer Association on the committee. The situation can be controlled to a degree, Dr Foulger said, but vulnerability of the individual can be reduced only by education of the adult and proper training of the child.

• • **On July 1, 1953,** a revised figure for the viscosity of water will be put into effect in Great Britain. This revised figure was determined by the National Bureau of Standards for petroleum and its products and is already in use in this country. The decision to accept the new figure was made by the British Standards Institution after consideration with various interests in Great Britain.

• • **The Hack Saw Manufacturers Association of America, Inc,** announces a revised schedule of sizes for hack saw blades, which will supersede the schedule in Simplified Practice Recommendation R 90-49.

Changes incorporated in the revised schedule decrease by about ten percent the number of standard specifications.

During the two years of study the Hack Saw Blade Industry found that for blades up to and including 24 inches in length there should be a definite relationship between width and thickness. Width should be 20 times the thickness.

The British Hack Saw Blade Manufacturers have collaborated in these studies and have adopted this revised schedule with the exception of a few additional sizes needed for foreign-made machines. These additional British sizes also follow the 20-to-one formula. Canadian manufacturers have also adopted the revision, the Association announces.

Blade manufacturers of France, Germany, and Sweden, are also studying the schedules.

• • **A Symposium** to discuss American Standards on Rayon and

Acetate Fabrics is scheduled for late in June. Consumer interests will be discussed on the last day of the 44th Annual Meeting of the American Home Economics Association, which will be held from Monday through Friday, June 23-26, at Kansas City, Missouri.

• • **American organizations** concerned are being asked whether the United States should participate actively in the development of international agreements on Common Names for Pest Control Chemicals. This is a project being organized under the procedures of the ISO.

• • **"If as many children,** during the last 50 years, had suddenly required crutches as now require glasses, we would be alarmed at the increase in the number of cripples." This is the lead sentence in a booklet recently published by Libby-Owens-Ford Company. Masters of lighting science are alarmed at the weakness of children's eyes, the booklet points out. In pictures and drawings it illustrates the requirements of the American Standard Practice for School Lighting. This is now the official and authoritative standard by which school illumination can and should be judged, it explains. Illustrations in the booklet show how prominent architects are building schools which meet the standard requirements.

Pointing out that we read comfortably in the shade under a broad tree on a bright day where the light measures about 1,000 footcandles, the booklet comments: "How we have been wasting energy for generations, asking the tender, growing bodies of children to read small letters on a page, in light that often measures less than 5 footcandles!"

American Standard A23.1-1948 has been developed over the years by engineers, architects, doctors, and specialists from a wide variety of organizations in a committee sponsored by the Illuminating Engineering Society and the American Institute of Architects under the procedure of the American Standards Association. It tells how much and what kind of light children should have for comfortable seeing and optimum eye health.

PERSONALS

• • **Cyril Ainsworth,** Technical Director of the American Standards Association, is serving again this year as chairman of the American Transit Association's Committee on Safety Awards. He also has been reelected President of the Museum of Safety.

• • **Robert D. Bonney,** member of ASA's Board of Directors, has been elected vice-president—manufacturing, and director of Congoleum-Nairn.

Mr Bonney has been director of manufacturing of Congoleum-Nairn Inc, since 1951. He joined the company as chief chemist at the Marcus Hook, Pa., plant in 1918, became director of research in 1928, and assistant manager of manufacturing in 1934. Earlier, he was an instructor in analytical chemistry at the Massachusetts Institute of Technology. In 1952 he received the PaVac Award of the New York Paint and Varnish Production Club for "outstanding contribution to the advancement of the protective coatings industry."

• • **Mr Jerome Strauss,** Vice-President, Vanadium Corporation of America, New York, and a former member of ASA's Board of Directors, is presenting the second H. W. Gillett Memorial Lecture.

This lecture is jointly sponsored by the American Society for Testing Materials and Battelle Memorial Institute. It commemorates Horace W. Gillett, one of America's leading technologists and metallurgists and the first Director of Battelle Institute.

The lecture is being presented Tuesday afternoon, June 30, during the 1953 meeting of the American Society for Testing Materials. The meeting is being held at Atlantic City June 29 through July 3.

• • **His efforts on behalf of voluntary standards** were cited in presentation of a posthumous award to the late William C. Johnson, former president of the National Electrical Manufacturers Association and executive vice-president of Allis-Chalmers Manufacturing Company, Milwaukee. The award was voted by the Committee of Awards, James H. McGraw Award, and was presented by Curtis W. McGraw, president of the McGraw-Hill Publishing Company at the NEMA Annual Convention, November 11. The award was voted to Mr Johnson for his great personal efforts toward establishing the economic and social purposes and benefits of voluntary engineering standards which have contributed to the advancement of the electrical manufacturing industry.

The citation says in part: "As chairman of the NEMA representatives on the Joint Committee for Engineering Standardization, Mr Johnson greatly enlarged and intensified a clearer understanding within the electrical industry of the economic and social purposes and benefits of engineering standards and of the limitations within which they should and must be carried on for the benefit of all parties at interest.

"His philosophy held that standards are adopted in the public interest and are designed to eliminate misunderstanding between the manufacturer and the purchaser and to assist the purchaser in selecting and obtaining the proper product for its particular need, and that existence of a standard does not in any respect preclude any company from manufacturing and selling products not conforming to the standard."

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JUNE 1953
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PART 2

5301
JUNE 1953

American Standards

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AATCC	American Association of Textile Chemists and Colorists
AASHO	American Association of State Highway Officials
ACI	American Concrete Institute
AIA	American Institute of Architects
AIEE	American Institute of Electrical Engineers
API	American Petroleum Institute
ASRE	American Society of Refrigerating Engineers
ASTM	American Society for Testing Materials
AWWA	American Water Works Association
BLS	U. S. Bureau of Labor Statistics Bulletin
BMTP	U. S. Bureau of Mines Technical Paper
CS	Commercial Standard
IPCEA	Insulated Power Cable Engineers Association
IRE	Institute of Radio Engineers
ITE	Institute of Traffic Engineers
JAN	Joint Army-Navy Specification
NBFU	National Board of Fire Underwriters
NBS	National Bureau of Standards
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
R	Reaffirmed
RTMA	Radio-Television Manufacturers Association (formerly Radio Manufacturers Association, RMA)
SPR	Simplified Practice Recommendation

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A dagger (†) indicates American Standards published by ASA to which quantity prices apply (see page 31).

A – Civil Engineering and Construction

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B31.1-1951	Code for Pressure Piping, including Supplement, B31.1a-1953, and B31.1.8-1952, Gas Transmission and Distribution Piping Systems (Section 8) (★B31.1a-1953 also sold separately $1.00) (★B31.1.8-1952 also sold separately $1.25)	5.25
B32.1-1952	★Preferred Thicknesses for Uncoated Thin Flat Metals (Under 0.250 in.)	1.00
B33.1-1935 R1947	Hose Coupling Screw Threads	.50
B36.1-1950	Welded and Seamless Steel Pipe, Specifications for (ASTM A53-47) **Under revision**	
B36.2-1950	Welded Wrought-Iron Pipe, Specifications for (ASTM A72-45)	.25
B36.3-1950	Seamless Carbon-Steel Pipe for High-Temperature Service, Specifications for (ASTM A106-48T) **Under revision**	
B36.4-1942 R1950	Electric-Fusion-Welded Steel Pipe (sizes 30 in. and over), Specifications for (ASTM A134-42) **Under revision**	
B36.5-1950	Electric - Resistance - Welded Steel Pipe, Specifications for (ASTM A135-46) **Under revision**	
B36.9-1950	Electric-Fusion-Welded Steel Pipe (sizes 4 in. to but not including 30 in.), Specifications for (ASTM A139-46) **Under revision**	
B36.10-1950	Wrought-Steel and Wrought-Iron Pipe	.65
B36.11-1942 R1950	Electric-Fusion-Welded Steel Pipe for High-Temperature and High-Pressure Service, Specifications for (ASTM A155-42) **Under revision**	
B36.12-1945	Lap-Welded and Seamless Steel and Lap-Welded Iron Boiler Tubes, Specifications for (ASTM A83-44) **Under revision**	
B36.13-1945	Electric - Resistance - Welded Steel and Open-Hearth Iron Boiler Tubes, Specifications for (ASTM A178-44) **Under revision**	
B36.14-1945	Seamless Steel Boiler Tubes for High-Pressure Service, Specifications for (ASTM A192-44) **Under revision**	
B36.15-1945	Medium-Carbon Seamless Steel Boiler and Superheater Tubes, Specifications for (ASTM A210-44) **Under revision**	
B36.16-1945 R1950	Spiral-Welded Steel or Iron Pipe, Specifications for (ASTM A211-44)	.25
B36.17-1945	Seamless Alloy-Steel Boiler and Superheater Tubes, Specifications for (ASTM A213-44) **Under revision**	
B36.18-1945	Electric - Resistance - Welded Steel Boiler and Superheater Tubes for High-Pressure Service, Specifications for (ASTM A226-44) **Under revision**	
B36.19-1952	★Stainless Steel Pipe	1.00
B36.20-1951	Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Ordinary Uses, Specifications for (ASTM A120-47)	.25
B36.21-1950	Seamless Alloy-Steel Pipe for High-Temperature Service, Specifications for (ASTM A158-49T) **Under revision**	
B36.22-1950	Seamless Carbon-Molybdenum Alloy-Steel Pipe for High-Temperature Service, Specifications for (ASTM A206-48T) **Under revision**	
B36.23-1950	Welded Alloyed Open-Hearth Iron Pipe, Specifications for (ASTM A253-47) **Under revision**	
B36.24-1950	Seamless Chromium-Molybdenum Alloy-Steel Pipe for Service at High Temperatures, Specifications for (ASTM A280-48T) **Under revision**	
B36.25-1950	Seamless 1 Percent Chromium, 0.5 Percent Molybdenum Alloy-Steel Pipe for Service at High Temperatures, Specifications for (ASTM A315-48T) **Under revision**	
B36.26-1950	Seamless and Welded Austenitic Stainless Steel Pipe, Specifications for (ASTM A312-48T) **Under revision**	
B38c1-1931	Domestic Refrigerators Using Ice, Code for Testing **Under revision—Out of print**	
B38.1-1944	†Food-Storage Volume and Shelf Area of Automatic Household Refrigerators, Method of Computing	.35
B38.2-1944	†Household Electric Refrigerators (Mechanically Operated), Test Procedures for	.50
B40.1-1939 R1947	Indicating Pressure and Vacuum Gages	.50
B45.1-1932	Foundry Patterns of Wood (CS19-32) **Out of print**	
B46.1-1947	Surface Roughness, Waviness, and Lay	.50
B46.2-1952	Surface Roughness and Lay, Physical Specimens of	1.00
B47.1-1941	Gage Blanks (CS8-41) **Under revision**	
B48.1-1933 R1947	†Inch-Millimeter Conversion for Industrial Use	.50
B49.1-1947	Shaft Couplings, Integrally Forged Flange Type for Hydro-Electric Units	.50
B56.1-1950	Industrial Power Trucks, Safety Code for	.85
B57.1-1953	Compressed Gas Cylinder Valve Outlet and Inlet Connections	1.50
B59.1-1950	Mechanical Refrigeration Installations on Shipboard (ASRE 26)	1.00
B60.1-1950	Refrigerant Expansion Valves, Method of Rating and Testing (ASRE 17-R)	.50
No Symbol	†Tolerances for Cylindrical Fits (A primer —not a standard)	.50

C — Electrical Engineering

(Special price of series, including abbreviation and symbol standards, $60.00)

C1-1951	National Electrical Code (NBFU 70; 4 x 6¼ in.) (Paper-bound NFPA 70; 4¾ x 7¼ in. $1.00) (Cloth-bound NFPA 70; 6 x 9 in. $3.00)	.10

C2 National Electrical Safety Code (NBS Handbook H30), $1.75 (also 5 parts sold separately)

C2.1-1941 R1947	Installation and Maintenance of Electrical Supply Stations, Safety Rules for the (NBS Handbook H31)	.10
C2.2-1941 R1947	Installation and Maintenance of Electric Supply and Communication Lines, Safety Rules for the (NBS Handbook H32)	.75
C2.3-1941 R1947	Installation and Maintenance of Electric Utilization Equipment, Safety Rules for the (NBS Handbook H33)	.20
C2.4-1939 R1947	Operation of Electric Equipment and Lines, Safety Rules for the (NBS Handbook H34)	.20
C2.5-1940 R1947	Radio Installations, Safety Rules for (NBS Handbook H35)	.15

C5 Protection against Lightning, Code for (NBS Handbook H46; NFPA 78):

C5.1-1953	Part I, Protection of Persons	.40
C5.2-1953	Part II, Protection of Buildings and Miscellaneous Property	
C5.3-1953	Part III, Protection of Structures Containing Flammable Liquids and Gases	

NOTE: Minimum charge on any purchase is $0.25.

		Price
C6.1-1944	Terminal Markings for Electrical Apparatus	1.00
C7.1-1953	★Soft or Annealed Copper Wire, Specifications for (ASTM B3-52)	.25
C7.2-1953	★Hard-Drawn Copper Wire, Specifications for (ASTM B1-52T)	.25
C7.3-1953	★Medium-Hard-Drawn Copper Wire, Specifications for (ASTM B2-52)	.25
C7.4-1953	★Tinned Soft or Annealed Copper Wire for Electrical Purposes, Specification for (ASTM B33-52T)	.25
C7.5-1953	★Bronze Trolley Wire, Specifications for (ASTM B9-52)	.25
C7.6-1951	Copper Trolley Wire, Specifications for (ASTM B47-49)	.25
C7.7-1953	★Hot-Rolled Copper Rods for Electrical Purposes, Specifications for (ASTM B49-52)	.25
C7.8-1953	★Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft, Specifications for (ASTM B8-52)	.25
C7.9-1953	★Soft Rectangular and Square Bare Copper Wire for Electrical Conductors, Specifications for (ASTM B48-52)	.25
C7.10-1953	★Hard-Drawn Copper Alloy Wires for Electrical Conductors, Specifications for (ASTM B105-52)	.25
C7.11-1953	★Figure-9 Deep-Section Grooved and Figure-8 Copper Trolley Wire for Industrial Haulage, Specifications for (ASTM B116-52)	.25
C7.12-1953	★Rope-Lay Stranded Copper Conductors Having Bunch-Stranded Members, for Electrical Conductors, Specifications for (ASTM B172-52T)	.25
C7.13-1953	★Rope-Lay Stranded Copper Conductors Having Concentric-Stranded Members, for Electrical Conductors, Specifications for (ASTM B173-52T)	.25
C7.14-1953	★Bunch-Stranded Copper Conductors for Electrical Conductors, Specifications for (ASTM B174-52T)	.25
C7.15-1953	★Lead-Coated and Lead-Alloy-Coated Soft Copper Wire for Electrical Purposes, Specification for (ASTM B189-52T)	.25
C7.16-1953	★Cored, Annular, Concentric-Lay-Stranded Copper Conductors, Specifications for (ASTM B226-52)	.25
C7.17-1953	★Hard-Drawn Copper Covered Steel Wire, Specifications for (ASTM B227-52)	.25
C7.18-1953	★Concentric-Lay-Stranded Copper Covered Steel Conductors, Specifications for (ASTM B228-52)	.25
C7.19-1953	★Concentric-Lay-Stranded Copper and Copper Covered Steel Composite Conductors, Specifications for (ASTM B229-52)	.25
C7.20-1953	★Hard-Drawn Aluminum Wire for Electrical Purposes, Specifications for (ASTM B230-52T)	.25
C7.21-1953	★Concentric-Lay-Stranded Aluminum Conductors, Hard-Drawn, Specifications for (ASTM B231-52)	.25
C7.22-1953	★Concentric-Lay-Stranded Aluminum Conductors, Steel-Reinforced (ACSR), Specifications for (ASTM B232-52T)	.25
C7.23-1953	★Rolled Aluminum Rods (EC Grade) for Electrical Purposes, Specifications for (ASTM B233-52)	.25
C7.24-1951	Resistivity of Electrical Conductor Materials, Method of Test for (ASTM B193-49)	.25
C7.25-1953	★Copper Bus Bar, Rod, and Shapes, Specifications for (ASTM B187-52)	.25
C7.26-1953	★Seamless Copper Bus Pipe and Tube, Specifications for (ASTM B188-52)	.25
C7.27-1953	★Aluminum Bars for Electrical Purposes (Bus Bars), Specifications for (ASTM B236-52T)	.25
C7.28-1953	★Standard Weight Zinc-Coated (Galvanized) Steel Core Wire for Aluminum Conductors, Steel Reinforced, Specifications for (ASTM B245-52T)	.25
C8.1-1944	Definitions and General Standards for Wire and Cables (AIEE 30-1944)	Under revision—Out of print
C8.5-1936	Cotton-Covered Round Copper Magnet Wire, Specifications for	Under revision—Out of print
C8.6-1936	Silk-Covered Round Copper Magnet Wire, Specifications for	Under revision—Out of print
C8.7-1936	Enameled Round Copper Magnet Wire, Specifications for	Under revision—Out of print
C8.9-1942	†Slow-Burning Wire and Cable, Specifications for	Under revision—Out of print
C8.10-1942	Impregnated Paper Insulation of Solid Type for Lead-Covered Power Cable	Out of print
C8.11-1936	†Code Rubber Insulation for Wire and Cable for General Purposes	Out of print
C8.12-1942	†Cotton Braid for Insulated Wire and Cable for General Purposes, Specifications for	.60
C8.13-1948	Varnished Cambric Insulated Cables, Specification for (IPCEA S-2-1946)	1.00
C8.14-1938	†Bare Concentric-Stranded Copper Cable for Insulated Conductors: Hard, Medium-Hard or Soft, Specifications for	Withdrawn
C8.15-1942	†Metallic Coverings for Insulated Wire and Cable, Specifications for	.35
C8.16-1940	†Rubber-Insulated Tree Wire, Specifications for	.60
C8.17-1936	†Class AO 30% Rubber Insulation for Wire and Cable for General Purposes	Under revision—Out of print
C8.18-1948	†Weather-Resistant (Weatherproof) Wire and Cable (URC Type), Specifications for	.60
C8.19-1939	†Weather-Resistant Saturants and Finishes for Aerial Rubber Insulated Wire and Cable, Specifications for	.40
C8.20-1939	†Heavy-Walled Enameled Round Copper Magnet Wire, Specifications for	.40
C11-1927	Hard Drawn Aluminum Conductors, Physical and Electrical Properties (AIEE 46-1927)	Withdrawn—Replaced by C7.20
C12-1941	Electricity Meters, Code for, including Supplement C12a-1947 (C12a-1947 sold separately 25¢)	2.00
C13-1926	Tubular Steel Poles for Electric Line Construction, Specifications for	Out of print
C16.4-1942	Loudspeaker Testing	.50
C16.5-1942	Volume Measurements of Electrical Speech and Program Waves	.20
C16.9-1943	†Power and Audio Transformers and Reactors (Home Receiver Replacement Type) (American War Standard)	.35
C16.11-1949	†Antennas, Methods of Testing (48 IRE 2.S2)	.75
C16.12-1949	†Frequency Modulation Broadcast Receivers, Methods of Testing (47 IRE 17.S1), with Supplement, C16.12a-1951, Effects of Mistuning and Downward Modulation, Methods of Testing for (49 IRE 17.S1)	1.25
C16.13-1949	†Television Receivers (Monochrome Service, 6-Megacycle Channel), Methods of Testing (48 IRE 22.S1)	1.00
C16.14-1949	†Color Codes: Numerical Values, Decimal Multipliers and Tolerances for Components for Electronic Equipment (RMA GEN-101)	.35
C16.15-1949	†Components for Electronic Equipment, Preferred Values for (RMA GEN-102)	.35
C16.16-1949	†Vibrating Interrupters and Rectifiers for Auto Radios (Frequency 115 Cycles) (RMA REC-113)	.35
C16.17-1951	†Piezoelectric Crystals, Terminology for (49 IRE 14.S1)	.80
C16.18-1951	†Vehicular Communications Receivers, Methods of Testing (49 IRE 16.S1)	.50
C16.19-1951	†Amplitude-Modulation Broadcast Receivers, Methods of Testing (48 IRE 17.S1)	1.00
C16.20-1951	†Television Signal Levels, Resolution, and Timing of Video Switching Systems, Methods of Measurement of (50 IRE 23.S1)	.75
C18-1947	Dry Cells and Batteries, Specifications for (NBS Circular C466)	.10
C19.1-1943	Industrial Control Apparatus (AIEE 15-1944)	Under revision—Out of print
C29.1-1944	†Insulator Tests (AIEE 41-1944)	.80
C34.1-1949	Pool Cathode Mercury-Arc Power Converters	1.20
C35.1-1943	Rotating Electrical Machinery on Railway Locomotives and Rail Cars and Trolley, Gasoline-Electric and Oil-Electric Coaches (AIEE 11-1943)	.80
C37.1-1950	†Relays Associated with Electric Power Apparatus	.60
C37.2-1945	†Automatic Station Control, Supervisory, and Telemetering Equipments	.60
C37.4-1945	†Alternating-Current Power Circuit Breakers	
C37.5-1945	†Rms Value of a Sinusoidal Current Wave and a Normal-Frequency Recovery Voltage, Methods for Determining the	
C37.6-1949	†Preferred Ratings for Power Circuit Breakers, Schedules of (Also sold separately 35¢)	
C37.7-1952	★†Interrupting Rating Factors for Reclosing Service Power Circuit Breakers (Also sold separately 30¢)	2.25
C37.8-1952	★†Rated Control Voltages and Their Ranges, for Power Circuit Breakers (Also sold separately 30¢)	
C37.9-1945	†Test Code for Power Circuit Breakers	
C37.12-1952	★†Guide Specifications for Alternating-Current Power Circuit Breakers (Also sold separately 60¢)	
C39.1-1951	†Electrical Indicating Instruments	1.60
C39.3-1948	†Shock-Testing Mechanism for Electrical Indicating Instruments, Specifications for	.50
C40-1928	Storage Batteries (AIEE 36-1928)	Under revision—Out of print
C42-1941	Definitions of Electrical Terms	Under revision—Out of print
C48-1931	Electric Railway Control Apparatus, Standards for (AIEE 16-1933)	.60
C50-1943	†Rotating Electrical Machinery	Under revision—Out of print
C52.3-1945	†Straight and Offset Resistance-Welding Electrodes and Electrode Holders (American War Standard)	.50
C52.4-1945	†Controls for Resistance-Welding Machines (American War Standard)	.35
C52.5-1945	†Specifications for Resistance-Welding Machines (American War Standard)	.75
C55.1-1951	Capacitors, Standards for (AIEE 18-1951)	.40

NOTE: Minimum charge on any purchase is $0.25.

		Price
C57	**Transformers, Regulators, and Reactors:**	
C57.10-1953	★†Transformers, Regulators, and Reactors, Terminology for (Revision sheet, gratis)	
C57.11-1953	★†Transformers, Regulators, and Reactors, General Requirements for (Revision sheet, gratis)	
C57.12-1949	†Distribution, Power, and Regulating Transformers, and Reactors other than Current-Limiting Reactors	
C57.13-1953	★†Instrument Transformers, Requirements for (Also sold separately $1.00)	
C57.14-1948	†Constant-Current Transformers of the Moving-Coil Type	
C57.15-1949	†Step-Voltage and Induction-Voltage Regulators (Also sold separately 50¢)	
C57.16-1948	†Current-Limiting Reactors	
C57.17-1948	†General-Purpose Specialty Transformers	
C57.18-1948	†Rectifier Transformer Equipment	
C57.22-1948	†Distribution, Power, and Regulating Transformers, Test Code for	
C57.23-1948	†Instrument Transformers, Test Code for	4.00
C57.25-1949	†Step-Voltage and Induction-Voltage Regulators, Test Code for (Also sold separately 50¢)	
C57.28-1948	†Rectifier Transformer Equipment, Test Code for	
C57.31-1948	†Operation of Transformers, Regulators, and Reactors at Altitudes Greater than 3300 Feet (1000 Meters), Guide for	
C57.32-1948	†Loading Oil-Immersed Distribution and Power Transformers, Guide for (Also sold separately 50¢)	
C57.33-1953	★†Loading and Operation of Instrument Transformers, Guide for (Also sold separately 35¢)	
C57.34-1948	†Loading Pole - Type Constant - Current Transformers, Guide for	
C57.35-1948	†Loading Step-Voltage and Induction-Voltage Regulators, Guide for	
C57.36-1948	†Loading Current-Limiting Reactors, Guide for	
C57.12a	Transformers — 67 Kv and below; 501 through 10,000 Kva, 3 Phase; 501 through 5,000 Kva, 1 Phase (Proposed American Standard; published for trial and criticism)	.60
C59.1-1947	Testing Molded Materials Used for Electrical Insulation, Methods of (ASTM D48-46T)	Under revision
C59.2-1944	Testing Electrical Insulating Oils, Method of (ASTM D117-43)	Under revision
C59.3-1952	Insulation Resistance of Electrical Insulating Materials, Methods of Test for (ASTM D257-49T)	Under revision
C59.4-1935 R1945	Rubber Matting for Use Around Electrical Apparatus (Voltage Rating of Matting, 3000 Volts), Specifications for (ASTM D178-24)	.25
C59.6-1952	★Rubber Insulating Tape, Specifications for (ASTM D119-48T)	.25
C59.10-1941 R1945	Testing Molding Powders Used in Manufacturing Molded Electrical Insulators, Methods of (ASTM D392-38)	.25
C59.11-1948	Impact Resistance of Plastics and Electrical Insulating Materials, Methods of Test for (ASTM D256-47T)	.25
C59.13-1951	Testing Sheet and Plate Materials Used in Electrical Insulation, Methods of (ASTM D229-49)	.25
C59.14-1948	Testing Laminated Tubes Used in Electrical Insulation, Methods of (ASTM D348-46)	.25
C59.15-1948	Testing Laminated Round Rods Used in Electrical Insulation, Methods of (ASTM D349-46)	.25
C59.16-1952	★Laminated Thermosetting Products (NEMA LP1-1951)	1.00
C59.17-1949	Fabricating Laminated Plastics, Practice for (NEMA 45-107)	.25
C59.18-1945	Testing Shellac Used for Electrical Insulation, Methods of (ASTM D411-44)	Under revision
C59.19-1952	★Dielectric Strength of Insulating Oils of Petroleum Origin, Method of Test for (ASTM D877-49)	.25
C59.20-1952	★Vulcanized Fibre (NEMA Vul-1949)	Under revision
C59.21-1951	Sampling Electrical Insulating Oils, Method for (ASTM D923-49)	.25
C59.22-1951	Power Factor and Dielectric Constant of Electrical Insulating Oils of Petroleum Origin, Method of Test for (ASTM D924-49)	.25
C59.23-1951	Gas Content of Insulating Oils, Methods of Test for (ASTM D831-48)	.25
C59.24-1951	Inorganic Chlorides and Sulfates in Insulating Oils, Method of Test for (ASTM D878-49)	.25
C59.25-1951	Detection of Free Sulphur in Electrical Insulating Oils, Method of Test for (ASTM D989-48T)	.25
C59.26-1951	Natural Block Mica and Mica Films Suitable for Use in Fixed Mica-Dielectric Capacitors, Specifications for (ASTM D748-49)	Under revision
C60.1-1952	★†Electron Tube Bases, Caps, and Terminals (RTMA ET-103-B; NEMA 500-B)	1.50
C60.2-1949	†Electron Tubes, Dimensional Characteristics of (RTMA ET-105-A; NEMA 502-A)	.50
C60.3-1949	†Gaskets for Water-Cooled Transmitting Tubes, Dimensional Characteristics of (RTMA ET-104-A; NEMA 501-A)	.35
C60.4-1950	†Designation System for Metal Electron Tube Shells (RTMA ET-112; NEMA 508)	.35
C60.5-1952	★Electron Tubes, Methods of Testing (50 IRE 7.S2)	1.25
C60.6-1952	★Direct Interelectrode Capacitance, Measurement of (RTMA ET-109-A; NEMA 505-A)	.80
C60.7-1952	★Gages for Electron Tube Bases (RTMA ET-106-A; NEMA 503-A)	.80
C60.8-1952	★Interelement Capacitances, Rating Values of (RTMA ET-114; NEMA 510)	.15
C62.1-1944	Lightning Arresters for Alternating-Current Power Circuits (AIEE 28-1944)	Under revision—Out of print
C63.1-1946	†Radio Interference of Electrical Components and Completed Assemblies of Electrical Equipment for the Armed Forces from 150 Kilocycles to 20 Megacycles, Method of Measuring (American War Standard) (JAN-I-225)	Gratis
C63.2	Radio Noise Meter, 0.015 to 25 Megacycles/Second, Specifications for (RMA 32-A; NEMA 102-1950) (Proposed American Standard; published for trial and criticism)	.65
C63.3	Radio Noise and Field Intensity Meters, 20 to 1000 Megacycles/Second, Specifications for (NEMA 131-1952; RTMA 41) (Proposed American Standard; published for trial and criticism)	.60
C64.1-1950	Brushes for Electrical Machines (NEMA CB1-1951)	1.50
C65.1-1952	★Power-Operated Radio Receiving Appliances	.25
C67.1-1951	†Preferred Nominal Voltages, 100 Volts and Under	.25
C68.1-1942	Measurement of Test Voltage in Dielectric Tests (AIEE 4-1943)	.80
C71.1-1950	Household Electric Ranges (NEMA ER1-1950)	.90
C72.1-1949	Household Automatic Electric Storage-Type Water Heaters (NEMA WH1-1949)	.90
C73-1941 R1946	Attachment Plugs and Receptacles, with supplements C73a-1950 (NEMA WD1-1950) and C73b-1951 (NEMA WD2-1951) (†C73a-1950 sold separately 25¢ †C73b-1951 sold separately 35¢)	.75
C74-1942	†Machine Tool Electrical Standards (American War Standard)	Out of print
C76.1-1943	Apparatus Bushings and Test Code for Apparatus Bushings (AIEE 21-1942)	.60
C77.1-1943	Wet Tests (AIEE 29-1941)	.40

C78 Incandescent Lamps:

(Special price of series with binder, $7.00; without binder, $5.00)

C78.100-1949	†General Service for 115-, 120-, and 125-Volt Circuits	.25
C78.101-1949	†General Service for 230- and 250-Volt Circuits	.25
C78.102-1949	†Train, Locomotive, and Country Home Service 30-34 and 60-64 Volts	.25
C78.103-1949	†Street Railway Service	.25
C78.105-1949	†Spotlight and Floodlight Service 115, 120, and 125 Volts	.25
C78.106-1949	†Infrared Lamps for 115-125 Volt Service	.25
C78.107-1949	†Projector and Reflector Spotlight and Floodlight Lamps 115, 120, and 125 Volts	.25
C78.109-1949	†Street Series Service	.25
C78.140-1949	†Miniature Incandescent Lamps	.25
C78.200-1949	†S-6 Bulb, Candelabra Screw Base and C-7 Bulb, Candelabra Screw Base	.25
C78.201-1949	†S-11 Bulb, Medium Screw Base	.25
C78.202-1949	†S-11 Bulb, Intermediate Screw Base	.25
C78.203-1949	†S-14 Bulb, Medium Screw Base	.25
C78.204-1949	†A-15 Bulb, Medium Screw Base	.25
C78.205-1949	†A-17 Bulb, Medium Screw Base	.25
C78.206-1949	†A-19 Bulb, Medium Screw Base (Overall Length: Max 3 15/16 Inches, Min 3 9/16 Inches)	.25
C78.207-1949	†T-6½ Bulb, Intermediate Screw Base	.25
C78.208-1949	†T-10 Bulb, Medium Screw Base	.25
C78.209-1949	†T-10 Reflector Bulb, Medium Screw Base	.25
C78.210-1949	†A-19 Bulb, Medium Screw Base (Overall Length: Max 4¼ Inches, Min 3⅞ Inches)	.25
C78.211-1949	†A-19 Bulb, Medium Screw Base (Overall Length: Max 4 7/16 Inches, Min 4 1/16 Inches)	.25
C78.212-1949	†T-8 Bulb, Medium Screw Base	.25
C78.213-1949	†PS-25 Bulb, Three-Contact Medium Screw Base	.25
C78.214-1949	†PS-25 Bulb, Three-Contact Mogul Screw Base	.25
C78.215-1949	†A-21 Bulb, Medium Screw Base (Overall Length: Max 4 7/16 Inches, Min 4⅛ Inches)	.25
C78.216-1949	†A-21 Bulb, Medium Screw Base (Overall Length: Max 5 5/16 Inches, Min 4 15/16 Inches)	.25

NOTE: Minimum charge on any purchase is $0.25.

		Price
C78.217-1949	†A-21 Bulb, Medium Screw Base (Overall Length: Max 4 15/16 Inches, Min 4 9/16 Inches)	.25
C78.218-1949	†A-23 Bulb, Medium Screw Base	.25
C78.219-1949	†G-30 Bulb, Three-Contact Mogul Screw Base	.25
C78.220-1949	†PS-25 Bulb, Medium Screw Base	.25
C78.221-1949	†PS-30 Bulb, Medium Screw Base	.25
C78.223-1949	†PS-35 Bulb, Mogul Screw Base	.25
C78.224-1949	†PS-40 Bulb, Mogul Screw Base	.25
C78.225-1949	†PS-52 Bulb, Mogul Screw Base	.25
C78.226-1949	†P-25 Bulb, Medium Screw Base	.25
C78.233-1949	†G-30 Bulb, Medium Screw Base	.25
C78.234-1949	†G-40 Bulb, Mogul Screw Base (Overall Length: Max 7 1/16 Inches, Min 6 1/2 Inches)	.25
C78.235-1949	†G-40 Bulb, Mogul Screw Base (Overall Length: Max 8 Inches, Min 7 1/16 Inches)	.25
C78.236-1949	†R-40 Bulb, Medium Skirted Screw Base	.25
C78.237-1949	†R-40 Bulb, Medium Screw Base	.25
C78.238-1949	†PAR-38 Bulb, Medium Skirted Screw Base	.25
C78.245-1949	†PS-25 Bulb, Mogul Screw Base	.25
C78.248-1949	†T-64 Bulb, Mogul Bipost Base	.25
C78.249-1949	†G-30 Bulb, Medium Skirted Screw Base	.25

C78 Electric Discharge Lamps, Dimensional and Electrical Characteristics of:

(Special price of series with binder, $5.00; without binder, $3.00)

C78.400-1951	†4-Watt T-5 General Service	.25
C78.401-1951	†6-Watt T-5 General Service	.25
C78.402-1951	†8-Watt T-5 General Service	.25
C78.403-1951	†14-Watt T-12 General Service	.25
C78.404-1951	†15-Watt T-8 General Service	.25
C78.405-1951	†15-Watt T-12 General Service	.25
C78.406-1951	†20-Watt T-12 General Service	.25
C78.407-1951	†30-Watt T-8 General Service	.25
C78.408-1951	†40-Watt T-12 General Service	.25
C78.409-1951	†85-Watt T-17 General Service	.25
C78.410-1951	†100-Watt T-17 General Service	.25
C78.413-1951	†32-Watt T-10 12-Inch Circular Preheat-Start	.25
C78.600-1951	†40-Watt T-12 Instant-Start	.25
C78.601-1951	†40-Watt T-17 Instant-Start	.25
C78.801-1951	†42-Inch T-6 Instant-Start Single-Pin Hot-Cathode	.25
C78.803-1951	†64-Inch T-6 Instant-Start Single-Pin Hot-Cathode	.25
C78.805-1951	†72-Inch T-8 Instant-Start Single-Pin Hot-Cathode	.25
C78.807-1951	†96-Inch T-8 Instant-Start Single-Pin Hot-Cathode	.25
C78.808-1951	†48-Inch T-12 Instant-Start Single-Pin Hot-Cathode	.25
C78.809-1951	†72-Inch T-12 Instant-Start Single-Pin Hot-Cathode	.25
C78.810-1951	†96-Inch T-12 Instant-Start Single-Pin Hot-Cathode	.25
C78.1100-1951	†20-Millimeter 52-Inch Cold-Cathode	.25
C78.1101-1951	†20-Millimeter 64-Inch Cold-Cathode	.25
C78.1102-1951	†20-Millimeter 76-Inch Cold-Cathode	.25
C78.1103-1951	†20-Millimeter 84-Inch Cold-Cathode	.25
C78.1104-1951	†25-Millimeter 93-Inch Cold-Cathode	.25
C78.1105-1951	†20-Millimeter 93-Inch Cold-Cathode	.25
C78.1200-1951	†8-Watt T-5 Bactericidal Lamp	.25
C78.1201-1951	†15-Watt T-8 Bactericidal Lamp	.25
C78.1202-1951	†30-Watt T-8 Bactericidal Lamp	.25
C79.1-1948	†Glass Bulbs Intended for Use with Electron Tubes and Electric Lamps, Nomenclature for	.50
C79.2-1948	†Molded Glass Flares Intended for Use with Electron Tubes and Electric Lamps, Nomenclature for	.25
C80.1-1950	†Rigid Steel Conduit, Zinc Coated, Specification for (NEMA 110-1950)	.50
C80.2-1950	†Rigid Steel Conduit, Enameled, Specification for (NEMA 111-1950)	.50
C80.3-1950	†Electrical Metallic Tubing, Zinc Coated, Specification for (NEMA 112-1950)	.35
C81.1-1951	†Rolled Threads for Screw Shells of Electric Lamp Holders and for Screw Shells of Unassembled Lamp Bases, Dimensions for	.35
	Fluorescent Lamp Auxiliaries:	
C78.180	†Fluorescent Lamp Starters, Specifications for (Proposed American Standard; published for trial and criticism)	.35
C78.181	†Fluorescent Lamp Starters, Method of Testing (Proposed American Standard; published for trial and criticism)	.35
C82.1	†Fluorescent Lamp Ballasts, Specification for (Proposed American Standard; published for trial and criticism, May 1953)	.50
C82.2	†Fluorescent Lamp Ballasts, Method of Measurement of (Proposed American Standard; published for trial and criticism)	.50
C82.3	†Fluorescent Lamp Reference Ballasts, Specification for (Proposed American Standard; published for trial and criticism)	.35

For standard abbreviations and symbols in electrical engineering, see Y32, Z10, and Z32.

D — Automotive

		Price
D6.1-1948	Uniform Traffic Control Devices for Streets and Highways, Manual on	.75
D7.1-1941	†Inspection Requirements for Motor Vehicles **Under revision—Out of print**	
D8.1-1951	Railroad Highway Grade Crossing Protection (AAR Bulletin 3)	.50
D10.1-1951	Adjustable Face Traffic Control Signal Head Standards (ITE Technical Report 1)	.50
D11.1-1943	Pre-Timed, Fixed Cycle, Traffic Signal Controllers (ITE Technical Report 2)	.50
D12.1-1953	★Street and Highway Lighting **In press**	
D13.1-1950	Traffic-Actuated, Traffic Signal Controllers and Detectors, Specifications for	.50

G — Ferrous Materials and Metallurgy

G8.1-1947	Zinc (Hot-Galvanized) Coatings on Structural Steel Shapes, Plates and Bars, and Their Products, Specifications for (ASTM A123-47; AASHO M111-35)	.25
G8.2-1951	Zinc-Coated (Galvanized) Iron or Steel Sheets, Specifications for (ASTM A93-50T)	.25
G8.3-1944	Zinc-Coated (Galvanized) Iron or Steel Telephone and Telegraph Line Wire, Specifications for (ASTM A111-43) **Under revision**	
G8.4-1935	Zinc-Coated (Galvanized) Iron or Steel Tie Wires, Specifications for (ASTM A112-33)	.25
G8.5-1935	Zinc-Coated Iron or Steel Chain-Link Fence Fabric Galvanized After Weaving, Specifications for (ASTM A117-33)	.25
G8.6-1943	Zinc-Coated Steel Wire Strand, "Galvanized" and Class A ("Extra Galvanized"), Specifications for (ASTM A122-41) **Under revision**	
G8.8-1937	Zinc-Coated (Galvanized) Wrought Iron Sheets, Specifications for (ASTM A163-36) **Under revision**	
G8.9-1948	Zinc-Coated (Galvanized) Iron or Steel Farm-Field and Railroad Right-of-Way Wire Fencing, Specifications for (ASTM A116-48)	.25
G8.10-1948	Zinc-Coated (Galvanized) Iron or Steel Barbed Wire, Specifications for (ASTM A121-48)	.25
G8.11-1944	Zinc-Coated Steel Wire Strand (Class B and Class C Coatings), Specifications for (ASTM A218-41)	.25
G9.1-1933	Carbon-Steel and Alloy-Steel Blooms, Billets and Slabs for Forgings, Specifications for (ASTM A17-29) **Under revision**	
G12-1936	Refined Iron Bars, Specifications for (ASTM A41-36)	.25
G17.1-1944	Carbon-Steel Castings for Valves, Flanges, and Fittings for High-Temperature Service, Specifications for (ASTM A95-44)	.25
G17.2-1944	Alloy-Steel Bolting Material for High-Temperature Service, Specifications for (ASTM A96-44) **Under revision**	
G17.3-1947	Forged or Rolled Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service, Specifications for (ASTM A105-46)	.25
G20-1939	Mild Steel Plates, Specifications for (ASTM A10-39) **Under revision**	
G21-1939	Structural Rivet Steel, Specifications for (ASTM A141-39) **Under revision**	
G23-1939	Uncoated Wrought-Iron Sheets, Specifications for (ASTM A162-39)	.25
G24.1-1947	Steel for Bridges and Buildings, Specifications for (ASTM A7-46) **Under revision**	
G25.1-1948	Gray Iron Castings, Specifications for (ASTM A48-48; AASHO M105)	.25
G26.1-1942	Cast-Iron Culvert Pipe, Specifications for (ASTM A142-38)	.25
G27.1-1942	Lightweight and Thin-Sectioned Gray Iron Castings, Specifications for (ASTM A190-40) **Under revision**	
G28.1-1942	Boiler Rivet Steel and Rivets, Specifications for (ASTM A31-40) **Under revision**	
G29.1-1945	Carbon-Steel Plates for Stationary Boilers and Other Pressure Vessels, Specifications for (ASTM A70-44) **Under revision**	
G30.1-1943	Low Tensile Strength Carbon-Steel Plates of Flange and Firebox Qualities, Specifications for (ASTM A89-43) **Under revision**	
G31.1-1947	Carbon-Silicon Steel Plates of Ordinary Tensile Ranges for Fusion-Welded Boilers and Other Pressure Vessels, Specifications for (ASTM A201-46) **Under revision**	
G32.1-1947	Chrome-Manganese-Silicon (CMS) Alloy-Steel Plates for Boilers and Other Pressure Vessels, Specifications for (ASTM A202-46) **Under revision**	
G33.1-1945	Low-Carbon Nickel-Steel Plates for Boilers and Other Pressure Vessels, Specifications for (ASTM A203-44) **Under revision**	
G34.1-1947	Molybdenum-Steel Plates for Boilers and Other Pressure Vessels, Specifications for (ASTM A204-46) **Under revision**	
G35.1-1947	High Tensile Strength Carbon-Silicon Steel Plates for Boilers and Other Pressure Vessels (Plates 4½ in. and Under in Thickness), Specifications for (ASTM A212-46) **Under revision**	

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G36.1-1944	Alloy-Steel Castings for Valves, Flanges, and Fittings for High-Temperature Service, Specifications for (ASTM A157-44)	.25
G37.1-1949	Forged or Rolled-Alloy-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service, Specifications for (ASTM A182-48T)	Under revision
G38.1-1952	★Carbon and Alloy-Steel Nuts for Bolts for High-Pressure and High-Temperature Service, Specifications for (ASTM A194-51)	.25
G39.1-1947	Structural Steel for Locomotives and Cars, Specifications for (ASTM A113-46)	Under revision
G40.1-1943	Low Tensile Strength Carbon-Steel Plates of Structural Quality for Welding, Specifications for (ASTM A78-43)	Under revision
G41.1-1947	Structural Silicon Steel, Specifications for (ASTM A94-39)	Under revision
G42.1-1942	High-Strength Structural Rivet Steel, Specifications for (ASTM A195-41)	Under revision
G43.1-1942	Axle-Steel Bars for Concrete Reinforcement, Specifications for (ASTM A160-39)	Under revision
G44.1-1942	Fabricated Steel Bar or Rod Mats for Concrete Reinforcement, Specifications for (ASTM A184-37)	.25
G45.1-1942	Welded Steel Wire Fabric for Concrete Reinforcement, Specifications for (ASTM A185-37; AASHO M55-37)	.25
G46.1-1947	Forged or Rolled Steel Pipe Flanges for General Service, Specifications for (ASTM A181-46)	Under revision
G48.1-1953	★Malleable Iron Castings, Specifications for (ASTM A47-52; AASHO M106)	.25
G49.1-1948	Cupola Malleable Iron, Specifications for (ASTM A197-47)	.25
G50.1-1945	Carbon-Steel Castings for Miscellaneous Industrial Uses, Specifications for (ASTM A27-44)	Under revision
G51.1-1944	Carbon-Steel Castings Suitable for Fusion Welding for Miscellaneous Industrial Uses, Specifications for (ASTM A215-44)	Under revision
G52.1-1944	Alloy-Steel Castings for Structural Purposes, Specifications for (ASTM A148-44)	Under revision

H — Nonferrous Materials and Metallurgy

H7.1-1953	★Copper and Copper-Base Alloy Forging Rods, Bars, and Shapes, Specifications for (ASTM B124-51)	Under revision
H8.1-1953	★Free-Cutting Brass Rod and Bar for Use in Screw Machines, Specifications for (ASTM B16-51)	Under revision
H13-1925	Plumbago Crucibles for Non-Tilting Furnaces in Non-Ferrous Foundry Practice, Outside Dimensions of	.25
H17.1-1942	Lake Copper Wire Bars, Cakes, Slabs, Billets, Ingots, and Ingot Bars, Specifications for (ASTM B4-42)	.25
H17.2-1943	Electrolytic Copper Wire Bars, Cakes, Slabs, Billets, Ingots, and Ingot Bars, Specifications for (ASTM B5-43; AASHO M110-45)	.25
H23.1-1953	★Seamless Copper Water Tube, Specifications for (ASTM B88-51)	.25
H24.1-1949	Slab Zinc (Spelter), Specifications for (ASTM B6-49; AASHO M120)	.25
H25.1-1943	Rolled Zinc, Specifications for (ASTM B69-39; AASHO M113-39)	.25
H26.1-1953	★Seamless Copper Pipe, Standard Sizes, Specifications for (ASTM B42-51)	Under revision
H27.1-1953	★Seamless Red Brass Pipe, Standard Sizes, Specifications for (ASTM B43-51)	Under revision
H28.1-1949	Bronze Castings in the Rough for Locomotive Wearing Parts, Specifications for (ASTM B66-49; AAR M-503)	Under revision
H29.1-1949	Car and Tender Journal Bearings, Lined, Specifications for (ASTM B67-49; AAR M-501)	Under revision
H30.1-1953	★Copper-Silicon Alloy Wire for General Purposes, Specifications for (ASTM B99-51)	.25
H31.1-1949	Roller Copper-Alloy Bearings and Expansion Plates and Sheets for Bridge and Other Structural Uses, Specifications for (ASTM B100-49; AASHO M108)	Under revision
H32.1-1953	★Brass Wire, Specifications for (ASTM B134-51)	Under revision
H33.1-1953	★Leaded Red Brass (Hardware Bronze) Rods, Bars, and Shapes, Specifications for (ASTM B140-51)	Under revision

J — Rubber

J1.1-1942	Sample Preparation for Physical Testing of Rubber Products, Methods of (ASTM D15-41)	Under revision
J2.1-1942	Tension Testing of Vulcanized Rubber, Methods of (ASTM D412-41)	Under revision
J3.1-1942	Adhesion of Vulcanized Rubber (Friction Test), Methods of Test for (ASTM D413-39)	.25
J4.1-1949	Accelerated Aging of Vulcanized Rubber by the Oxygen-Pressure Method, Method of Test for (ASTM D572-48)	Under revision
J5.1-1949	Accelerated Aging of Vulcanized Rubber by the Oven Method, Method of Test for (ASTM D573-48)	.25

J6 Specifications for Rubber Protective Equipment for Electrical Workers:

J6.1-1950	Rubber Insulating Line Hose (ASTM D1050-49T)	.50
J6.2-1950	Rubber Insulator Hoods (ASTM D1049-49T)	
J6.4-1950	Rubber Insulating Blankets (ASTM D1048-49T)	
J6.5-1950	Rubber Insulating Sleeves (ASTM D1051-49T)	
J6.3-1945	†Leather Protective Gloves (American War Standard)	.25
J6.6-1952	Rubber Insulating Gloves, Specifications for (ASTM D120-52T)	.25

K — Chemical Industry

K5-1922	Alloys of Lead, Tin, Antimony and Copper, Methods of Chemical Analysis of (ASTM B18-36T)	Under revision—Out of print
K12-1921	Battery Assay of Copper, Methods of (ASTM B34-36T)	Under revision
K13.1-1950	†Identification of Gas-Mask Canisters, Safety Code for	.35
K15.1-1947	Chemical Analysis of White Pigments, Methods of (ASTM D34-47)	Under revision
K16.1-1944	Chemical Analysis of Dry Red Lead, Methods of (ASTM D49-44)	.25
K18.1-1948	Laboratory Sampling and Analysis of Coal and Coke, Methods of (ASTM D271-48)	.35
K20.1-1936	Cubic Foot Weight of Crushed Bituminous Coal, Method of Test for (ASTM D291-29)	.25
K20.2-1936	Cubic Foot Weight of Coke, Method of Test for (ASTM D292-29)	.25
K20.3-1951	Tumbler Test for Coke, Method of (ASTM D294-50)	.25
K20.4-1948	Drop Shatter Test for Coke, Method of (ASTM D141-48)	.25
K20.5-1936	Volume of Cell Space of Lump Coke, Method of Test for (ASTM D167-24)	.25
K21.1-1936	Toluene Insoluble Solid Matter in Rosin (Chiefly Sand, Chips, Dirt and Bark), Method of Test for (ASTM D269-30)	.25
K22.1-1944	Zinc Oxide, Specifications for (ASTM D79-44)	.25
K23.1-1943	Basic Carbonate White Lead, Specifications for (ASTM D81-43)	.25
K24-1941	Red Lead, Specifications for (ASTM D83-41)	.25
K25-1941	Mineral Iron Oxide, Specifications for (ASTM D84-41)	Under revision
K26.1-1947	Lampblack, Specifications for (ASTM D209-47)	.25
K27.1-1947	Chrome Yellow and Chrome Orange, Specifications for (ASTM D211-47)	.25
K28.1-1947	Reduced Chrome Green, Specifications for (ASTM D213-47)	.25
K29.1-1947	Iron Blue, Specifications for (ASTM D261-47; AASHO M131)	.25
K32.1-1953	★Spirits of Turpentine, Specifications for (ASTM D13-51)	In press
K33-1937	Sampling and Testing Turpentine, Methods of (ASTM D233-36)	Under revision
K34.1-1949	Raw Linseed Oil, Specifications for (ASTM D234-48; AASHO M125-49)	.25
K35.1-1949	Boiled Linseed Oil, Specifications for (ASTM D260-48)	.25
K36.1-1947	Bone Black, Specifications for (ASTM D210-47)	.25
K37.1-1946	Chrome Oxide Green, Specifications for (ASTM D263-46)	.25
K41-1939	Specific Gravity of Pigments, Methods of Test for (ASTM D153-39)	.25
K42.1-1945	Coarse Particles in Pigments, Pastes, and Paints, Methods of Test for (ASTM D185-45)	.25
K44.1-1951	Yellow, Orange, Red and Brown Pigments Containing Iron and Manganese, Methods of Chemical Analysis of (ASTM D50-50)	.25
K45-1941	Titanium Dioxide Pigments, Specifications for (ASTM D476-41)	.25
K46-1940	Sampling Coal for Analysis, Method of (ASTM D21-40)	Under revision
K47.1-1945	Basic Sulfate White Lead, Specifications for (ASTM D82-44)	.25
K48-1941	Blue Lead; Basic Sulfate, Specifications for (ASTM D405-41)	.25
K49-1941	C. P. Para Red Toner, Specifications for (ASTM D475-41)	Under revision
K50.1-1949	Zinc Yellow (Zinc Chromate), Specifications for (ASTM D478-49)	.25
K51-1941	Alkalinity or Acidity of Pigments, Method of Test for (ASTM D278-31)	.25
K52-1941	Bleeding of Pigments, Methods of Test for (ASTM D279-31)	.25

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K53-1941	Hydroscopic Moisture (and Other Matter Volatile Under the Test Conditions) in Pigments, Method of Test for (ASTM D280-33)	.25
K54-1941	Oil Absorption of Pigments, Method of Test for (ASTM D281-31)	.25
K55-1941	Acetone Extract in Dry Lampblack and Dry Bone Black, Method of Test for (ASTM D305-31) **Under revision**	
K56-1941	Tinting Strength of White Pigments, Method of Test for (ASTM D332-36)	.25
K57-1941	Mass Color and Tinting Strength of Color Pigments, Method of Test for (ASTM D387-36)	.25
K58-1941	Chemical Analysis of Yellow and Orange Pigments Containing Chromium Compounds, Blue Pigments, and Chrome Green, Methods of (ASTM D126-36) **Under revision**	
K59-1941	Chemical Analysis of Dry Mercuric Oxide, Method of (ASTM D284-33)	.25
K60.1-1952	★Chip Soap, Specifications for (ASTM D496-51)	.25
K60.2-1949	Ordinary Bar Soap, Specifications for (ASTM D497-39)	.25
K60.3-1952	★Powdered Soap (Nonalkaline Soap Powder), Specifications for (ASTM D498-51)	.25
K60.4-1949	White Floating Toilet Soap, Specifications for (ASTM D499-48)	.25
K60.5-1949	Alkaline Soap Powder, Specifications for (ASTM D534-42)	.25
K60.6-1949	Milled Toilet Soap, Specifications for (ASTM D455-48)	.25
K60.7-1949	Built Soap, Powdered, Specifications for (ASTM D533-44)	.25
K60.8-1949	Compound Chip Soap (with Rosin), Specifications for (ASTM D690-48)	.25
K60.9-1949	Compound Powdered Soap (Granulated, with Rosin), Specifications for (ASTM D691-44)	.25
K60.10-1949	Caustic Soda, Specifications for (ASTM D456-39)	.25
K60.11-1949	Soda Ash, Specifications for (ASTM D458-39)	.25
K60.12-1949	Trisodium Phosphate, Specifications for (ASTM D538-44)	.25
K60.13-1949	Salt-Water Soap, Specifications for (ASTM D593-42)	.25
K60.14-1952	★Liquid Toilet Soap, Specifications for (ASTM D799-51)	.25
K60.15-1949	Olive Oil Chip Soap (Type A, Straight; Type B, Blended), Specifications for (ASTM D630-42)	.25
K60.16-1949	Palm Oil Chip Soap (Type A, Straight; Type B, Blended), Specifications for (ASTM D536-42)	.25
K60.17-1949	Modified Soda (Sesquicarbonate Type), Specifications for (ASTM D457-39)	.25
K60.18-1949	Sodium Metasilicate, Specifications for (ASTM D537-41)	.25
K60.19-1949	Sodium Sesquisilicate, Specifications for (ASTM D594-41)	.25
K60.20-1949	Tetrasodium Pyrophosphate (Anhydrous), Specifications for (ASTM D595-45)	.25
K60.21-1950	Sampling and Chemical Analysis of Alkaline Detergents, Methods of (ASTM D501-49)	.25

L — Textile Industry

L1.1-1947	†Textile Safety Code	.50
L3.1-1941	Cotton Rubber-Lined Fire Hose for Public and Private Fire Department Use, Specifications for (ASTM D296-38) **Under revision**	
L4.1-1948	†Bleached Cotton Bed Sheets and Pillowcases, Specifications for	.25
L10-1936 R1945	Shrinkage in Laundering of Woven Cotton Cloth, Method of Test for (ASTM D437-36)	.25
L11.1-1941	†Body Sizes for Boys' Garments	.35

L12 Definitions (Including Tolerances) for Filling Materials for Bedding and Upholstery:

L12.1-1946 L12.2-1946 L12.4-1946	†Cotton †Wool †Miscellaneous	.50
L13.1-1942	Tubular Sleeving and Braids, Methods of Testing and Tolerances for (ASTM D354-41)	.25
L14.1-1949	†Accelerated Ageing of Textiles Dyed with Sulfur Colors (AATCC 26-44)	.25
L14.2-1949	†Colorfastness of Textiles to Acids and to Alkalies (AATCC 6-25)	.25
L14.3-1949	†Colorfastness of Wool Textiles to Carbonizing (AATCC 11-41)	.25
L14.4-1949	†Colorfastness of Silk to Degumming (AATCC 7-28)	.25
L14.5-1949	†Colorfastness of Textiles to Fulling (AATCC 13-32)	.25
L14.6-1949	†Colorfastness of Wool Textiles to Mill Washing and Scouring (AATCC 1-32)	.25
L14.7-1949	†Colorfastness of Silk to Peroxide Bleaching (AATCC 13-32)	.25
L14.8-1949	†Colorfastness of Textiles to Sea Water (AATCC 12-31)	.25
L14.9-1949	†Colorfastness of Textiles to Stoving (AATCC 9-28)	.25
L14.10-1949	†Test for Mercerization (AATCC 19-37)	.25
L14.11-1949	†Evaluation of Wetting Agents (AATCC 17-43)	.25
L14.12-1951 2nd ed.	Definition of Terms Relating to Textile Materials (ASTM D123-50) **Under revision**	
L14.13-1951	Testing and Tolerances for Cotton Yarn, General Methods of (ASTM D180-49T)	.25
L14.14-1949	Testing and Tolerances for Cotton Sewing Threads, Methods of (ASTM D204-42)	.25
L14.15-1949	Test for Osnaburg, Cement Sacks, Methods of (ASTM D205-39)	.25
L14.16-1949	Testing and Tolerances for Woven Tapes, Methods of (ASTM D259-44)	.25
L14.17-1949	Testing and Tolerances for Certain Light and Medium Weight Cotton Fabrics, Methods of (ASTM D274-36)	.25
L14.18-1951 2nd ed.	Asbestos Yarns, Specifications and Methods of Test for (ASTM D299-50T) **Under revision**	
L14.19-1949	Determining Relative Humidity, Method of (ASTM D337-34)	.25
L14.20-1949	Holland Cloth, Methods of Test for (ASTM D376-35)	.25
L14.21-1949	Woolen Yarns, Specifications and Methods of Test for (ASTM D403-48T)	.25
L14.22-1949	Worsted Yarns, Specifications and Methods of Test for (ASTM D404-48T)	.25
L14.23-1951	Testing Cotton Fibers, General Methods of (ASTM D414-49T)	.40
L14.25-1949	Testing Pile Floor Covering, Methods of (ASTM D418-42)	.25
L14.26-1951	Fineness of Wool, Methods of Test for (ASTM D419-50T)	.25
L14.27-1949	Testing and Tolerances for Certain Carded Cotton Gray Goods, Methods of (ASTM D433-39)	.25
L14.28-1949	Testing and Tolerances for Certain Wool and Part Wool Fabrics, Methods of (ASTM D462-44)	.25
L14.29-1951	Fineness of Wool Tops, Specifications and Methods of Test for (ASTM D472-50T)	.25
L14.30-1949	Testing and Tolerances for Spun Rayon and Estron Yarns and Threads, Methods of (ASTM D507-44)	.25
L14.31-1949	Testing and Tolerances for Yarns Spun from Mixed Fibers, Methods of (ASTM D508-43)	.25
L14.32-1951	Fiber Length of Wool, Method of Test for (ASTM D519-49)	.25
L14.33-1949	Testing Rayon and Estron Staple, Methods of (ASTM D540-44)	.25
L14.34-1951	Testing and Tolerances for Single Jute Yarn, Methods of (ASTM D541-49)	.25
L14.35-1949	Testing Woven Asbestos Cloth, Methods of (ASTM D577-42)	.25
L14.36-1951 2nd ed.	Testing and Tolerances for Glass Yarn, Methods of (ASTM D578-50T)	.25
L14.37-1951	Testing and Tolerances for Woven Glass Fabrics, Methods of (ASTM D579-49)	.25
L14.38-1951	Testing and Tolerances for Woven Glass Tapes, Methods of (ASTM D580-49)	.25
L14.39-1951	Testing and Tolerances for Woven Glass Tubular Sleeving and Braids, Methods of (ASTM D581-49)	.25
L14.40-1951	Hard Scoured Wool in Wool in the Grease (Laboratory Scale Operations), Method of Test for (ASTM D584-50)	.25
L14.41-1949	Testing Asbestos Tubular Sleeving, Methods of (ASTM D628-44)	.25
L14.42-1949	Testing and Tolerances for Certain Fine Staple Cotton Gray Goods, Methods of (ASTM D679-44)	.25
L14.43-1949	Testing and Tolerances for Certain All-Cotton and Cotton and Rayon Fine Fancy Goods, Methods of (ASTM D680-44)	.25
L14.44-1949	Testing and Tolerances for Jute Rove and Plied Yarn for Electrical and Packing Purposes, Methods of (ASTM D681-48)	.25
L14.45-1949	Testing and Tolerances for Rope (Leaf and Bast Fibers), Methods of (ASTM D738-46)	.25
L14.46-1949	Testing and Tolerances for Spun, Twisted, or Braided Products Made from Flax, Hemp, Ramie, or Mixtures Thereof, Methods of (ASTM D739-46)	.25
L14.47-1949	Compatibility of Glass Yarn with Insulating Varnish, Method of Test for (ASTM D886-46T) **Under revision**	
L14.48-1951	Universal System of Yarn Numbering (ASTM D861-50) **Under revision**	
L14.49-1949	Test for Determination of Small Amounts of Copper, Manganese and Nickel in Textiles, Method of (ASTM D377-47T) **Under revision**	
L14.50-1949	Cotton Goods for Rubber and Pyroxylin Coating, Specifications and Methods of Test for (ASTM D334-40)	.25
L14.51-1949	Air Permeability of Textile Fabrics, Methods of Test for (ASTM D737-46)	.25
L14.52-1951 2nd ed.	Testing Felt, Methods of (ASTM D461-50) **Under revision**	
L14.53-1951	†Colorfastness to Light (AATCC 16-45) **In press**	
L14.54-1951	†Colorfastness of Acetate Rayons to Atmospheric Fumes (AATCC 23-46) **In press**	
L14.55-1951	†Resistance of Textiles to Mildew and Rot, and Evaluation of Textile Fungicides (AATCC 30-46) **In press**	

		Price
L14.56-1951	†Colorfastness to Perspiration (AATCC 15-45)	In press
L14.57-1951	†Colorfastness to Chlorine Bleaching (AATCC 3-42)	In press
L14.58-1951	†Colorfastness to Peroxide Bleaching (AATCC 29-45)	In press
L14.59-1951	†Water Resistance of Fabrics — Resistance to Hydrostatic Pressure (AATCC 18-41)	In press
L14.60-1951	†Resistance to Water Spray (AATCC 22-41)	In press
L14.61-1951	†Resistance to Absorption of Water During Immersion (AATCC 21-41)	In press
L14.63-1951	†Colorfastness to Pleating (AATCC 31-46)	In press
L14.64-1951	†Resistance of Textile Fabrics and Yarns to Insect Pests (AATCC 24-49)	In press
L14.65-1951	†Evaluation of Insect Pest Deterrents on Textiles (AATCC 28-49)	In press
L14.66-1951	Textile Testing Machines, Specifications for (ASTM D76-49)	.25
L14.67-1951	Testing and Tolerances for Knit Goods, Methods of (ASTM D231-46)	.25
L14.68-1951	Testing Woven Textile Fabrics, General Methods of (ASTM D39-49)	.25
L14.69-1952	★†Flammability of Clothing Textiles, Test Method for (AATCC 33-52)	.35

L17 Specifications for Women's Industrial Clothing (American War Standards):

L17.1-1944	†Bungalow Aprons, and Wrap-around and Coat Style Dresses	.50
L17.2-1944	†Slacks, Dungarees, Overalls, and Coveralls	.50
L17.3-1944	†Jackets, Shirts, and Aprons	.50
L17.4-1944	†Regular and Princess Model Coat Style Dresses	.35

L18 Specifications for Protective Occupational (Safety) Clothing (American War Standards):

L18.1-1944 L18.2-1944 L18.3-1944	†Leather Aprons †Cape Sleeves and Bibs †Knee-Length Leggings	.50
L18.4-1944 L18.5-1944 L18.6-1944	†Leather Coats †Leather Overalls †Leather Sleeves	.50
L18.7-1944 L18.8-1944 L18.9-1944 L18.10-1944 L18.11-1944 L18.12-1944	†Welders' Leather Gauntlet Gloves †Protective Leather Gloves, Steel-Stapled †Asbestos Gloves †Asbestos Gloves, Leather Reinforced †Asbestos Mittens †Asbestos Mittens, Leather Reinforced	Under revision
L18.14-1944 L18.15-1944 L18.16-1944 L18.17-1944	†Asbestos Aprons (Bib Type) †Asbestos Cape Sleeves and Bibs †Asbestos Leggings (Knee and Hip Length) †Asbestos Coats	.50
L18.18-1945 L18.19-1945 L18.20-1945	†Leather One-Finger Mittens †Leather Mittens †Asbestos One-Finger Mittens	.50
L18.21-1945 L18.22-1945 L18.23-1945 L18.24-1945 L18.25-1945	†Flame-Resistant Fabric Aprons (Bib Type) †Flame-Resistant Fabric Leggings (Knee and Hip Length) †Flame-Resistant Fabric Coats †Flame-Resistant Fabric Pants †Flame-Resistant Fabric Coveralls	.50
L18.26-1945 L18.27-1945 L18.28-1945	†Flame-Resistant Fabric Spats †Leather Spats †Asbestos Spats	.50
L18.29-1945	†Chemical-Resistant Gloves	.35

L22 Rayon and Acetate Fabrics, Minimum Requirements for: (Complete, Bound.....$4.25)

L22.1.1(Rev)-1952 through L22.1.24(Rev)-1952	★†Part I, Women's and Girls' Rayon Wearing-Apparel Fabrics (Part I and Test Methods $3.00)	1.00
L22.2.1(Rev)-1952 through L22.2.16(Rev)-1952	★†Part II, Men's and Boys' Rayon Wearing-Apparel Fabrics (Part II and Test Methods $2.80)	.80
L22.3.1-1952 through L22.3.11-1952	★†Part III, Rayon Home-Furnishings Fabrics (Part III and Test Methods $2.65) †Part IV, Test Methods	.65 2.25

M — Mining

M2.1-1951	Installing and Using Electrical Equipment in Coal Mines, Safety Rules for (BMTP 402)	.20
M5-1932	Screen Testing of Ores (Hand Method), Methods for	.25
M6-1931	†Drainage of Coal Mines	.75
M7.1-1933 M7.2-1935	Frogs, Switches and Turnouts for Coal Mine Tracks (Drawings for Light Rail Turnouts) Frogs, Switches and Turnouts for Coal Mine Tracks (Drawings for Heavy Rail Turnouts)	.75
M11-1927	Wire Rope for Mines	Under revision
M12.1-1946	†Construction and Maintenance of Ladders and Stairs for Mines	.35
M13-1925 R1942	†Rock-Dusting Coal Mines to Prevent Coal Dust Explosions	.25
M14-1930	†Explosives in Bituminous Coal Mines, Use of	.35
M15-1931	†Coal Mine Transportation, Safety Code for	.35
M17-1930	†Fire Fighting Equipment in Metal Mines	gratis
M18-1928	†Underground Transportation in Metal Mines	gratis
M19-1928	†Mechanical Loading Underground in Metal Mines	gratis
M20.1-1938	Classification of Coals by Rank, Specifications for (ASTM D388-38)	.25
M20.2-1937	Classification of Coals by Grade, Specifications for (ASTM D389-37)	.25
M20.3-1944	Designating the Size of Coal from Its Screen Analysis, Method for (ASTM D431-44)	.25
M20.4-1939	Commercial Varieties of Bituminous and Subbituminous Coals, Definitions for (ASTM D493-39)	.25
M24-1932	†Installing and Using Electrical Equipment in Metal Mines, Safety Rules for	gratis

O — Wood Industry

O1.1-1944	†Woodworking Machinery, Safety Code for	.75
O3-1926	Cross-ties and Switch-ties, Specifications for	Under revision
O4a-1927	Testing Small Clear Specimens of Timber, Methods of (ASTM D143-27)	Under revision
O4b-1927	Static Tests of Timbers in Structural Sizes, Methods of (ASTM D198-27)	.25
O5.1-1948	†Wood Poles, Specifications and Dimensions for	.50
O6-1939	Round Timber Piles, Specifications for (ASTM D25-37)	Under revision

P — Pulp and Paper Industry

P1-1936	†Paper and Pulp Mills, Safety Code for	Under revision

PH — Photography and Motion Pictures

(Project Z38 has been distributed among PH1, PH2, PH3, and PH4)

(Project Z22 has become PH22)

PH1 Characteristics of Photographic Films, Plates and Papers: (Special price of series, $6.25)

PH1.2-1952	★†5¼- x 2⅛-Inch Aerial Film Spools, Dimensions for (Revision of Z38.1.32-1945)	.25
PH1.3-1952	★†5½- x 2⅝-Inch Aerial Film Spools, Dimensions for (Revision of Z38.1.33-1945)	.25
PH1.4-1952	★†7- x 1 13/16-Inch Aerial Film Spools, Dimensions for (Revision of Z38.1.34-1945)	.25
PH1.5-1952	★†7- x 2⅜-Inch Aerial Film Spools, Dimensions for (Revision of Z38.1.36-1945)	.25
PH1.6-1952	★†7- x 4⅝-Inch Aerial Film Spools, Dimensions for (Revision of Z38.1.37-1945)	.25
PH1.7-1952	★†9½- x 4-Inch Aerial Film Spools, Dimensions for (Revision of Z38.1.38-1945)	.25
PH1.8-1952	★†9½- x 5 5/16-Inch Aerial Film Spools, Dimensions for (Revision of Z38.1.39-1945)	.25
PH1.9-1952	★†9½- x 6⅝-Inch Aerial Film Spools, Dimensions for (Revision of Z38.1.40-1945)	.25
PH1.10-1952	★†Roll Film and Unsensitized Leaders and Trailers for Aerial Photography, Dimensions for (Revision of Z38.1.41-1944)	.25
Z38.1.1-1951	†Film Packs, Dimensions for	.25

NOTE: Minimum charge on any purchase is $0.25.

		Price
Z38.1.3-1948	†70-Millimeter Perforated (and Unperforated) Film (Cutting and Perforating Standard), Dimensions for	.25
Z38.1.5-1943	†Photographic Papers — Inch Wide Rolls, Dimensions of	
	Under revision—Out of print	
Z38.1.6-1943	†Photographic Papers—Centimeter Size Sheets and Rolls, Dimensions of	
	Under revision—Out of print	
Z38.1.7-1950	†Amateur Roll Film, Backing Paper, and Film Spools, Dimensions for	.75
Z38.1.25-1947	†Industrial X-Ray Sheet Film (Inch Sizes), Dimensions for	.25
Z38.1.26-1947	†Graphic Arts Sheet Film (Inch Sizes), Dimensions for	.25
Z38.1.27-1947	†Medical X-Ray Sheet Film (Inch and Centimeter Sizes), Dimensions for	.25
Z38.1.28-1947	†Professional Portrait and Commercial Sheet Film (Inch Sizes), Dimensions for	.25
Z38.1.29-1949	†Professional Portrait and Commercial Sheet Film (Centimeter Sizes), Dimensions for	.25
Z38.1.30-1951	†Photographic Dry Plates (Inch Sizes), Dimensions for	.25
Z38.1.31-1944 R1949	†Photographic Dry Plate (Centimeter Sizes), Dimensions for	.25
Z38.1.42-1944 R1948	†Emulsion Side of Photographic Sheet Film, Designation of	.25
Z38.1.43-1947	†Inch Size Photographic Papers, Dimensions of	.25
Z38.1.44-1944	†Thickness of Photographic Paper, Designation for	.25
Z38.1.47-1946	†35-Millimeter Film Magazines for Still Picture Cameras, Dimensions for	.25
Z38.1.48-1947	†Moulded Type Cores for Photographic Film and Paper Rolls, Dimensions of	.25
Z38.1.49-1951	†35-Millimeter Magazine Film (for Miniature Cameras), Dimensions for	.25
Z38.1.52-1951	†16-Millimeter 100-Foot Film Spool for Recording Instruments and Still Picture Cameras, Dimensions for	.25
Z38.1.53-1951	†16-Millimeter 200-Foot Film Spool for Recording Instruments and Still Picture Cameras, Dimensions for	.25
Z38.1.54-1951	†35-Millimeter 100-Foot Film Spool for Recording Instruments and Still Picture Cameras, Dimensions for	.25
Z38.1.55-1951	†70-Millimeter 100-Foot Film Spool for Recording Instruments and Still Picture Cameras, Dimensions for	.25
Z38.3.1-1943 R1948	†Definition of Safety Photographic Film	.35
Z38.3.2-1945	†Films for Permanent Records, Specifications for	.50
Z38.3.3-1946	†35-Millimeter Slidefilm Projection Rolls, Specifications for	.25
Z38.7.8-1947	†Microfilms, Practice for	.25

PH2 Photographic Sensitometry: (Special price of series, $3.25)

PH2.1-1952	★†Spectral Diffuse Densities of Three-Component Subtractive Color Films	.35
PH2.2-1953	★†Sensitometry and Grading of Photographic Papers (Revision of Z38.2.3-1947)	.50
Z38.2.1-1947	†Photographic Speed and Exposure Index, Method for Determining	.50
Z38.2.2-1949	†Photographic Exposure Computer (Special quantity discounts apply.)	1.00
Z38.2.4-1946	†Spectral-Sensitivity Indexes and Group Numbers for Photographic Emulsions, Method for Determining	.50
Z38.2.5-1946	†Diffuse Transmission Density	.75
Z38.2.6-1948	†General-Purpose Photographic Exposure Meters (Photoelectric Type)	.50
Z52.43-1944	Photographic Flash Lamps, including Supplement Z52.43a (Federal Specification W-L-122 and Supplement) (American War Standard) (Under Revision)	.10

PH3 Photographic Apparatus: (Special price of series, $6.00)

PH3.1-1952	★†Back Window Location for Roll Film Cameras (Revision of Z38.4.9-1944)	.25
PH3.2-1952	★†Performance Characteristics of Focal-Plane Shutters Used in Still Picture Cameras, Method for Determining	.35
PH3.3-1952	★†Exposure-Time Markings for Focal-Plane Shutters Used in Still Picture Cameras	.25
PH3.4-1952	★†Performance Characteristics of Between-the-Lens Shutters Used in Still Picture Cameras, Method for Determining	.35
PH3.5-1952	★†Exposure-Time Markings for Between-the-Lens Shutters Used in Still Picture Cameras	.25
PH3.6-1952	★†Tripod Connections for American Cameras, ¼-Inch-20 Thread (Revision of Z38.4.1-1942)	.25
PH3.7-1952	★†Tripod Connections for Heavy-Duty or European Cameras, ⅜ - Inch - 16 Thread with Adapter for ¼-Inch-20 Tripod Screws (Revision of Z38.4.2-1942)	.25

NOTE: Minimum charge on any purchase is $0.25.

		Price
Z38.1.50-1948	†Radiographic Intensifying Screens, Dimensions for	.25
Z38.1.51-1951	†Photographic Double Film Holders of the Lock-Rib Type, Dimensions for	.25
Z38.4.3-1947	†Distance Scales Marked in Feet for Focusing Camera Lenses	.25
Z38.4.4-1942 R1947	†Focal Lengths of Lenses, Marking	.25
Z38.4.5-1950	†Shutter Cable Release Tip and Socket with Taper (European) Thread	.25
Z38.4.6-1950	†Shutter Cable Release Tip and Socket with Straight (American) Thread	.25
Z38.4.7-1950	†Lens Aperture Markings	.25
Z38.4.8-1950	†Roll Film Cameras, Picture Sizes for	.25
Z38.4.10-1944 R1952	†Front Mounts for Camera Lenses, Dimensions of	.25
Z38.4.11-1944	†Threads for Attaching Mounted Lenses to Photographic Equipment	.25
Z38.4.12-1944	†Attachment Thread Specifications for Camera Lens Accessories	.25
Z38.4.13-1948	†Distance Scales Marked in Meters for Focusing Camera Lenses	.25
Z38.4.19-1948	†Nomenclature, Parts of a Photographic Objective Lens	.25
Z38.4.20-1948	†Apertures and Related Quantities Pertaining to Photographic Lenses, Methods of Designating and Measuring	.25
Z38.4.21-1948	†Focal Lengths and Focal Distances of Photographic Lenses, Methods of Designating and Measuring	.35
Z38.4.26-1951	†Flash Synchronizing Equipment, Bi-post-Type, Connecting Cord Ends and Pins	.25
Z38.4.27-1951	†Flash Synchronizing Equipment, Bayonet-Type, Connecting Cord Ends and Pins	.25
Z38.7.4-1944 R1948	†Projectors for Opaque Materials for Use in Small Auditoriums, Specifications for	.25
Z38.7.5-1948	†Printing and Projection Equipment, Methods of Testing	.25
Z38.7.6-1950	†Photographic Enlargers, Methods for Testing	.35
Z38.7.9-1946	†Microfilm Readers, Specifications for	.25
Z38.7.10-1944 R1948	†Contact Printers, Specifications for	.25
Z38.7.11-1944 R1952	†Printing Frames, Specifications for	.25
Z38.7.12-1944 R1948	†Masks (Separate), Specifications for	.25
Z38.7.14-1949	†Lantern Slide Projectors, Specifications for	.25
Z38.7.15-1945	†Slidefilm Projectors, Specifications for	.25
Z38.7.16-1947 R1952	†Resolving Powers of Lenses for 35-Millimeter Slidefilm and 2- x 2-Inch Slides, Method for Determining	.25
Z38.7.17-1946	†Reels for Processed Microfilm	.25
Z38.7.19-1950	†Lantern Slides, Dimensions for	.25

PH4 Photographic Processing: (Special price of series, $11.50)

PH4.2-1952	★†Sheet Film Processing Tanks, Specifications for (Revision of Z38.8.15-1949)	.25
PH4.3-1952	★†Photographic Trays, Specifications for	.25
PH4.4-1952	★†Channel-Type Photographic Hangers, Plates and Sheet Film, Specifications for	.25
Z38.8.1-1944 R1948	†Temperature of Processing Solutions, Practice for	.25
Z38.8.2-1945	†Conversion of Weights and Measures for Photographic Use, Practice for	.25
Z38.8.3-1947	†Photographic Processing Manipulation of Films and Plates, Practice for	.50
Z38.8.4-1945	†Bite of Film Clips, Dimensions for	.25
Z38.8.6-1949	†Photographic Processing Manipulation of Paper, Practice for	.50
Z38.8.7-1946	†Radiographic Film Processing Tanks, Internal Dimensions for	.25
Z38.8.8-1946	†Deep Tanks for Commercial Photofinishing, Internal Dimensions for	.25
Z38.8.9-1946	†Scales, Graduates, and Thermometers for Use in Photography, Accuracy of	.25
Z38.8.11-1948	†Photographic Thermometers	.25
Z38.8.12-1948	†Photographic Graduates	.25
Z38.8.13-1950	†Safety-Time of Photographic Darkroom Illumination, Procedure for Determining the	.25
Z38.8.14-1950	†Photographic Wetting Agents, Requirements for	.25
Z38.8.17-1948	†Permanency of the Silver Images of Processed Films, Plates, and Papers, Method for Predicting the	.25
Z38.8.18-1948	†Chromium-Plated Surfaces for Ferrotyping	.25
Z38.8.19-1948	†Maximum Safe Temperatures for Photographic Processing Solutions, Method for Determining	.25
Z38.8.20-1948	†Melting Point of the Photographic Layer of Films, Plates, and Papers, Method for Determining the	.25
Z38.8.21-1950	†Photographic Filing Envelopes for Storing Processed Photographic Films, Plates, and Papers, Requirements for	.25
Z38.8.23-1949	†X-Ray Sheet Film Hangers (Clip-Type)	.25
Z38.8.25-1950	†Residual Thiosulfate and Tetrathionate in Processed Photographic Papers, Method for Determining	.35

Specifications for Photographic Grade Chemicals:

		Price
Acids		
Z38.8.100-1949	†Acetic Acid, Glacial	.25
Z38.8.101-1949	†Sulfuric Acid	.25
Z38.8.102-1949	†Citric Acid	.25
Z38.8.103-1949	†Boric Acid, Crystalline	.25
Z38.8.104-1949	†Hydrochloric Acid	.25
Z38.8.106-1949	†Acetic Acid, 28 Percent	.25
Developing Agents		
Z38.8.125-1948	†Mono-Methyl-Para-Aminophenol Sulfate (Armol, Elon, Genol, Graphol, Metol, Photol, Pictol, Rhodo, Veritol)	.25
Z38.8.126-1949	†Hydroquinone (Para - Dihydroxybenzene, Quinol, Hydrochinone, Hydroquinol)	.25
Z38.8.127-1948	†2, 4-Diaminophenol Hydrochloride (Acrol, Amidol, Dianol, Dolmi)	.25
Z38.8.128-1949	†Para-Hydroxyphenylglycin (Athenon, Glycin, Iconyl, Monazol)	.25
Z38.8.129-1948	†Para - Aminophenol Hydrochloride (Kodelon, P.A.P.)	.25
Z38.8.130-1948	†Pyrogallic Acid (1,2,3-Trihydroxybenzene, Pyro, Pyrogallol)	.25
Z38.8.131-1948	†Catechol (Ortho - Dihydroxybenzene, Pyrocatechin, Pyrocatechol)	.25
Z38.8.132-1948	†Para-Phenylenediamine (1,4-Diaminobenzene)	.25
Z38.8.133-1948	†Para - Phenylenediamine Dihydrochloride (1,4-Diaminobenzene Dihydrochloride)	.25
Z38.8.134-1948	†Chlorhydroquinone (2-Chlor-1,4-Dihydroxybenzene, Adurol, C.H.Q.)	.25
Hardeners		
Z38.8.150-1949	†Aluminum Potassium Sulfate, Crystalline	.25
Z38.8.151-1949	†Chromium Potassium Sulfate, Crystalline	.25
Z38.8.152-1949	†Formaldehyde Solution	.25
Z38.8.153-1949	†Paraformaldehyde	.25
Miscellaneous		
Z38.8.175-1949	†Sodium Sulfate, Anhydrous	.25
Z38.8.176-1949	†Sodium Acetate, Anhydrous	.25
Z38.8.177-1949	†Potassium Dichromate	.25
Z38.8.178-1949	†Potassium Permanganate	.25
Z38.8.179-1949	†Potassium Ferricyanide	.25
Z38.8.180-1949	†Copper Sulfate	.25
Z38.8.181-1949	†Potassium Persulfate	.25
Z38.8.182-1949	†Sodium Sulfide, Fused	.25
Restrainers and Antifoggants		
Z38.8.200-1949	†Potassium Bromide	.25
Z38.8.201-1948	†Potassium Iodide	.25
Z38.8.202-1948	†Potassium Chloride	.25
Z38.8.203-1948	†Sodium Chloride	.25
Z38.8.204-1948	†Benzotriazole	.25
Z38.8.205-1948	†5-Methylbenzotriazole	.25
Z38.8.206-1948	†Nitrobenzimidazole	.25
Alkalies		
Z38.8.225-1948	†Sodium Hydroxide	.25
Z38.8.226-1948	†Potassium Hydroxide	.25
Z38.8.227-1948	†Sodium Carbonate, Monohydrate	.25
Z38.8.228-1948	†Sodium Carbonate, Anhydrous	.25
Z38.8.229-1948	†Potassium Carbonate	.25
Z38.8.230-1948	†Sodium Tetraborate	.25
Z38.8.231-1948	†Sodium Metaborate	.25
Z38.8.232-1948	†Ammonium Hydroxide	.25
Fixing Agents		
Z38.8.250-1949	†Sodium Thiosulfate, Anhydrous	.25
Z38.8.251-1949	†Sodium Thiosulfate, Crystalline	.25
Sulfites		
PH4.105-1952	★†Photographic Grade Sodium Acid Sulfate, Fused ($NaHSO_4$) (Sodium Bisulfate, Fused; Niter Cake), Specification for	.25
PH4.275-1952	★†Photographic Grade Sodium Sulfite (Na_2SO_3), Specification for (Revision of Z38.8.275-1948)	.25
Z38.8.276-1949	†Sodium Bisulfite	.25
Z38.8.277-1948	†Potassium Metabisulfite	.25

PH22 Motion Pictures:
(Special price of series with binder, $15.00; without binder, $13.00)

		Price
PH22.1-1953	★†35mm Motion Picture Film, Alternate Standards for Either Positive or Negative Raw Stock, Dimensions for	.25
PH22.11-1952	★†16-Millimeter Motion Picture Projection Reels (Revision of Z22.11-1941 and Z52.33-1945)	**Under revision**
PH22.24-1952	★†Splices for 16-Millimeter Motion Picture Films for Projection (Revision of Z22.24-1941, Z22.25-1941, and Z52.20-1944)	.25
PH22.38-1952	★†Raw Stock Cores for 16-Millimeter Motion Picture Film (Revision of Z22.38-1944)	.25
PH22.50-1946 R1950	†Reel Spindles for 16-Millimeter Motion Picture Projectors (Formerly Z22.50-1946)	.25
PH22.73-1951	†32-Millimeter on 35-Millimeter Motion Picture Negative Raw Stock, Cutting and Perforating Dimensions for	.25
PH22.74-1951	†Zero Point for Focusing Scales on 16-Millimeter and 8-Millimeter Motion Picture Cameras	.25
PH22.76-1951	†Mounting Threads and Flange Focal Distances for Lenses on 16-Millimeter and 8-Millimeter Motion Picture Cameras	.25
PH22.77-1952	★†Splices for 8-Millimeter Motion Picture Films	.25
PH22.82-1951	†Sound Transmission of Perforated Projection Screens	.25
PH22.83-1952	★†Edge-Numbering 16-Millimeter Motion Picture Film	.25
PH22.84-1953	★†Projection Lamps, Medium Prefocus Ring Double-Contact Base-Up Type for 16mm and 8mm Motion Picture Projectors, Dimensions for	.25
PH22.85-1953	★†Projection Lamps, Medium Prefocus Base-Down Type for 16mm and 8mm Motion Picture Projectors, Dimensions for	.25
PH22.92-1953	★†Enlargement Ratio for 16mm to 35mm Optical Printing	.25
Z22.2-1946	†Emulsion and Sound Record Positions in Camera for 35-Millimeter Sound Motion Picture Film	.25
Z22.3-1946	†Emulsion and Sound Record Positions in Projector for 35-Millimeter Sound Motion Picture Film	.25
Z22.4-1941	†35-mm Film; Projector Reels	.25
Z22.5-1947	†16-Millimeter Silent Motion Picture Negative and Positive Raw Stock, Cutting and Perforating Dimensions for	.25
Z22.7-1950	†Picture Aperture of 16-Millimeter Motion Picture Cameras, Location and Size of	.35
Z22.8-1950	†Picture Aperture of 16-Millimeter Motion Picture Projectors, Location and Size of	.35
Z22.9-1946	†Emulsion Position in Camera for 16-Millimeter Silent Motion Picture Film	.25
Z22.10-1947	†Emulsion Position in Projector for Direct Front Projection of 16-Millimeter Silent Motion Picture Film	.25
Z22.12-1947	†16-Millimeter Sound Motion Picture Negative and Positive Raw Stock, Cutting and Perforating Dimensions for	.25
Z22.15-1946	†Emulsion and Sound Record Positions in Camera for 16-Millimeter Sound Motion Picture Film	.25
Z22.16-1947	†Emulsion and Sound Record Positions in Projector for Direct Front Projection of 16-Millimeter Sound Motion Picture Film	.25
Z22.17-1947	†8-Millimeter Motion Picture Negative and Positive Raw Stock, Cutting and Perforating Dimensions for	.25
Z22.19-1950	†Picture Aperture of 8-Millimeter Motion Picture Cameras, Location and Size of	.25
Z22.20-1950	†Picture Aperture of 8-Millimeter Motion Picture Projectors, Location and Size of	.25
Z22.21-1946	†Emulsion Position in Camera for 8-Millimeter Silent Motion Picture Film	.25
Z22.22-1947	†Emulsion Position in Projector for Direct Front Projection of 8-Millimeter Silent Motion Picture Film	.25
Z22.23-1941	†8-mm Silent Film; Projection Reels	.25
Z22.27-1947	†Transmission Density of Motion Picture Films, Method of Determining (sold only with Z38.2.5-1946)	.75
Z22.28-1946	†Projection Rooms and Lenses for Motion Picture Theatres, Dimensions for	.25
Z22.29-1948	†Theater Projection Screens, Dimensions for	.25
Z22.31-1946	†Motion Picture Safety Film, Definition for (sold only with Z38.3.1-1943)	.35
Z22.33-1941	**Withdrawn**	
Z22.34-1949	†35-Millimeter Motion Picture Negative Raw Stock, Cutting and Perforating Dimensions for	.25
Z22.35-1947	†16-Tooth 35-Millimeter Motion Picture Projector Sprockets, Dimensions for	.25
Z22.36-1947	†35-Millimeter Motion Picture Positive Raw Stock, Cutting and Perforating Dimensions for	.25
Z22.37-1944	†Raw Stock Cores for 35-Millimeter Motion Picture Film	.25
Z22.39-1944	†Screen Brightness for 35-Millimeter Motion Pictures	.25

		Price
Z22.40-1950	†Sound Records and Scanning Area of 35-Millimeter Sound Motion Picture Prints	.25
Z22.41-1946	†Sound Records and Scanning Area of 16-Millimeter Sound Motion Picture Prints	.25
Z22.42-1946	†Sound-Focusing Test Films for 16-Millimeter Sound Motion Picture Projection Equipment, Specifications for	.25
Z22.43-1946	†3000-Cycle Flutter Test Film for 16-Millimeter Sound Motion Picture Projectors, Specifications for	.25
Z22.44-1946	†Multi-Frequency Test Film Used for Field Testing 16-Millimeter Sound Motion Picture Projection Equipment, Specifications for	.25
Z22.45-1946	†400-Cycle Signal Level Test Film for 16-Millimeter Sound Motion Picture Projection Equipment, Specifications for	.25
Z22.46-1946	†16-Millimeter Positive Aperture Dimensions and Image Size for Positive Prints Made from 35-Millimeter Negatives	.25
Z22.47-1946	†Negative Aperture Dimensions and Image Size for 16-Millimeter Duplicate Negatives Made from 35-Millimeter Positive Prints	.25
Z22.48-1946	†Printer Aperture Dimensions for Contact Printing 16-Millimeter Positive Prints from 16-Millimeter Negatives	.25
Z22.49-1946	†Printer Aperture Dimensions for Contact Printing 16-Millimeter Reversal and Color Reversal Duplicate Prints	.25
Z22.51-1946	†Intermodulation Tests on Variable-Density 16-Millimeter Sound Motion Picture Prints, Method of Making	.25
Z22.52-1946	†Cross-Modulation Tests on Variable-Area 16-Millimeter Sound Motion Picture Prints, Method of Making	.25
Z22.53-1946	†Resolving Power of 16-Millimeter Motion Picture Projector Lenses, Method of Determining	.25
Z22.54-1946	†Freedom from Travel Ghost in 16-Millimeter Sound Motion Picture Projectors, Method of Determining	.25
Z22.55-1947	†35-Millimeter Sound Motion Picture Release Prints in Standard 2000-Foot Lengths, Specifications for	.25
Z22.56-1947	†Nomenclature for Motion Picture Film Used in Studios and Processing Laboratories (19½- x 28½-inch reproduction of chart on pages 8 and 9 sold separately 30¢)	.50
Z22.57-1947	†Buzz-Track Test Film for 16-Millimeter Motion Picture Sound Reproducers	.25
Z22.58-1947	†Picture Projection Aperture of 35-Millimeter Sound Motion Picture Projectors	.25
Z22.59-1947	†Photographing Aperture of 35-Millimeter Sound Motion Picture Cameras	.25
Z22.60-1948	†Theater Sound Test Film for 35-Millimeter Motion Picture Sound Reproducing Systems	.25
Z22.61-1949	†Sound Focusing Test Film for 35-Millimeter Motion Picture Sound Reproducers (Service Type)	.25
Z22.62-1948	†Sound Focusing Test Film for 35-Millimeter Motion Picture Sound Reproducers (Laboratory Type)	.25
Z22.65-1948	†Scanning-Beam Uniformity Test Film for 35-Millimeter Motion Picture Sound Reproducers (Service Type)	.25
Z22.66-1948	†Scanning-Beam Uniformity Test Film for 35-Millimeter Motion Picture Sound Reproducers (Laboratory Type)	.25
Z22.67-1948	†1000-Cycle Balancing Test Film for 35-Millimeter Motion Picture Sound Reproducers	.25
Z22.68-1949	†Buzz-Track Test Film for 35-Millimeter Motion Picture Sound Reproducers	.25
Z22.69-1948	†Sound Record and Scanning Area of Double Width Push-Pull Sound Prints, Normal Centerline Type	.25
Z22.70-1948	†Sound Record and Scanning Area of Double Width Push-Pull Sound Prints, Offset Centerline Type	.25
Z22.71-1950	†32-Millimeter Sound Motion Picture Negative and Positive Raw Stock, Cutting and Perforating Dimensions for	.25
Z22.72-1950	†32-Millimeter Silent Motion Picture Negative and Positive Raw Stock, Cutting and Perforating Dimensions for	.25
Z22.78-1950	†Mounting Frames for Theater Projection Screens, Dimensions for	.25
Z22.79-1950	†16-Millimeter Sound Projector Test Film	.25
Z22.80-1950	†Scanning-Beam Uniformity Test Film for 16-Millimeter Motion Picture Sound Reproducers (Laboratory Type)	.25
Z22.81-1950	†Scanning-Beam Uniformity Test Film for 16-Millimeter Motion Picture Sound Reproducers (Service Type)	.25

X — Office Equipment and Supplies

		Price
X2.1.1-1951	†Desks and Tables for General Office Use, Dimensions of	.25
X2.1.2-1952	★†Installation of Telephone Equipment on Desks, Provisions for	.25
X2.4.1-1951	†Index Cards and Record-Keeping Cards, Size Designation for	.25

Y — Drawings and Symbols

(see also Z10, Z14, Z15, and Z32)

Y10.10-1953	Meteorology, Letter Symbols for	In press
Y32.1.1-1951	Single (One) Line Electrical Engineering Diagrams, Graphical Symbols for	1.40
Y32.9-1943	Architectural Plans, Graphical Electrical Symbols for (Redesignation of Z32.9-1943)	.40

Z — Miscellaneous

Z1.1-1941 Z1.2-1941	†Guide for Quality Control †Control Chart Method of Analyzing Data (American War Standards)	1.00
Z1.3-1942	†Control Chart Method of Controlling Quality During Production (American War Standard)	1.00
Z2-1938	Protection of Heads, Eyes, and Respiratory Organs, Safety Code for (NBS Handbook H24)	Under revision—Out of print
Z4.1-1935	†Industrial Sanitation in Manufacturing Establishments, Safety Code for	.50
Z4.2-1942	†Drinking Fountains, Specifications for	.25
Z4.3-1935	Sanitary Privy (Supplement No. 108 to the Public Health Reports)	Under revision—Out of print
Z7.1-1942	Illuminating Engineering Nomenclature and Photometric Standards	.50
Z8-1941	†Laundry Machinery and Operations, Safety Code for	.35
Z9	†Fundamentals Relating to the Design and Operation of Exhaust Systems (Report published for comment)	Out of print
Z9.1-1951	†Ventilation and Safe Operation of Open-Surface Tanks	.75

Z10 Symbols and Abbreviations:

(see also B6.5, Y10.10, Y32, Z7.1, and Z32)

Z10f-1928	Mathematical Symbols	.40
Z10g5-1933	Graphical Symbols Used for Electric Traction including Railway Signaling (AIEE 17g5-1934)	Out of print
Z10.1-1941	Abbreviations for Scientific and Engineering Terms	.50
Z10.2-1942	Letter Symbols for Hydraulics	.50
Z10.3-1948	Letter Symbols for Mechanics of Solid Bodies	.50
Z10.4-1943	Letter Symbols for Heat and Thermodynamics, Including Heat Flow	.65
Z10.5-1949	Letter Symbols for Electrical Quantities	.60
Z10.6-1948	Letter Symbols for Physics	1.00
Z10.7-1950	†Letter Symbols for Aeronautical Sciences	1.25
Z10.8-1949	Letter Symbols for Structural Analysis	.50
Z10.12-1946	Letter Symbols for Chemical Engineering	.50

Z11 Petroleum Products:

(Special price of series, $10.00)

Z11.1-1936 R1947	Standard Abridged Volume Correction Table for Petroleum Oils (ASTM D206-36; API 500-36)	.25
Z11.2-1944 R1949	Viscosity by Means of the Saybolt Viscosimeter, Method of Test for (ASTM D88-44; API 518-44; AASHO T72-44)	.25
Z11.3-1952	★Cone Penetration of Lubricating Grease, Test for (ASTM D217-52T)	.25
Z11.4-1942 R1947	Melting Point of Paraffin Wax, Method of Test for (ASTM D87-42; API 513-42)	.25
Z11.5-1948	Cloud and Pour Points, Method of Test for (ASTM D97-47; API 506-47)	.25
Z11.6-1952	★Flash and Fire Points by Means of Open Cup, Method of Test for (ASTM D92-52; AASHO T48-52)	In press

		Price
Z11.7-1952	★Flash Point by Means of the Pensky-Martens Closed Tester, Method of Test for (ASTM D93-52; AASHO T73-52)	.25
Z11.9-1947	Water in Petroleum Products and Other Bituminous Materials, Method of Test for (ASTM D95-46; API 519-46; AASHO T55-46)	.25
Z11.10-1952	★Distillation of Gasoline, Naphtha, Kerosine, and Similar Petroleum Products, Method of Test for (ASTM D86-52; AASHO T115-52)	.25
Z11.11-1952	★Distillation of Natural Gasoline, Method of Test for (ASTM D216-52)	.25
Z11.13-1952	★Sulfur in Petroleum Products by the Bomb Method, Method of Test for (ASTM D129-52)	.25
Z11.14-1950	Thermal Value of Fuel Oil, Method of Test for (ASTM D240-50; API 517-50)	.25
Z11.16-1948	Analysis of Grease, Methods of (ASTM D128-47; API 501-47)	.25
Z11.17-1949	Burning Quality of Kerosine, Method of Test for (ASTM D187-49)	.25
Z11.18-1930 R1947	Burning Quality of Mineral Seal Oil, Method of Test for (ASTM D239-30; API 504-30)	.25
Z11.19-1936 R1947	Burning Quality of Long-Time Burning Oil for Railway Use, Method of Test for (ASTM D219-36; API 503-36)	.25
Z11.20-1952	★Saponification Number of Petroleum Products by Color-Indicator Titration, Method of Test for (ASTM D94-52T)	.25
Z11.21-1930 R1947	Detection of Free Sulfur and Corrosive Sulfur Compounds in Gasoline, Method of Test for (ASTM D130-30; API 521-30)	**Under revision**
Z11.22-1949	Melting Point of Petrolatum and Microcrystalline Wax, Method of Test for (ASTM D127-49)	.25
Z11.23-1932 R1947	Autogenous Ignition Temperatures of Petroleum Products, Method of Test for (ASTM D286-30; API 522-30)	.25
Z11.24-1952	★Flash Point by Means of the Tag Closed Tester, Method of Test for (ASTM D56-52)	.25
Z11.25-1952	★Carbon Residue of Petroleum Products (Conradson Carbon Residue), Method of Test for (ASTM D189-52)	.25
Z11.26-1952	★Distillation of Gas Oil and Similar Distillate Fuel Oils, Method of Test for (ASTM D158-52)	.25
Z11.28-1952	★Terms Relating to Petroleum, Definitions of (ASTM D288-52)	.25
Z11.29-1935 R1947	Dilution of Crankcase Oils, Method of Test for (ASTM D322-35; API 524-35)	.25
Z11.30-1952	★Precipitation Number of Lubricating Oils, Method of Test for (ASTM D91-52)	.25
Z11.31-1952	★Gravity of Petroleum and Petroleum Products by Means of the Hydrometer, Method of Test for (ASTM D287-52)	.25
Z11.32-1952	★Distillation of Crude Petroleum, Method of Test for (ASTM D285-52)	.25
Z11.33-1935	Sampling Petroleum and Petroleum Products, Methods of (ASTM D270-33; API 528-33)	**Under revision**
Z11.35-1949	Color of Refined Petroleum Oil by Means of Saybolt Chromometer, Method of Test for (ASTM D156-49)	.25
Z11.36-1950	Existent Gum in Gasoline (Air-Jet Evaporation), Method of Test for (ASTM D381-50; API 529-50)	.25
Z11.37-1949	Knock Characteristics of Motor Fuels by the Motor Method, Test for (ASTM D357-48)	.25
Z11.39-1943 R1947	Viscosity-Temperature Charts for Liquid Petroleum Products (ASTM D341-43; API 533-43) (Charts A, B, C, D, and E)	1.25
Z11.41-1952	★Unsulfonated Residue of Plant Spray Oils, Method of Test for (ASTM D483-52T)	.25
Z11.42-1952	★Stoddard Solvent, Specifications for (ASTM D484-52)	.25
Z11.43-1952	★Distillation of Plant Spray Oils, Method of Test for (ASTM D447-52T)	**In press**
Z11.44-1952	★Vapor Pressure of Petroleum Products (Reid Method), Method of Test for (ASTM D323-52)	.25
Z11.45-1941 R1947	Calculating Viscosity Index, Method for (ASTM D567-41; API 540-41)	.25
Z11.46-1941 R1947	Conversion of Kinematic Viscosity to Saybolt Universal Viscosity, Method for (ASTM D446-39; API 534-39)	.25
Z11.47-1952	★Carbon Residue of Petroleum Products (Ramsbottom Carbon Residue), Method of Test for (ASTM D524-52T)	.25
Z11.48-1949	Tetraethyl Lead in Gasoline, Method of Test for (ASTM D526-48T)	.25
Z11.49-1945 R1949	Carbonizable Substance in White Mineral Oil (Liquid Petrolatum), Method of Test for (ASTM D565-45; API 545-45)	.25
Z11.50-1945 R1949	Carbonizable Substances in Paraffin Wax, Method of Test for (ASTM D612-45; API 544-45)	.25
Z11.51-1943 R1947	Dropping Point of Lubricating Grease, Method of Test for (ASTM D566-42; API 543-42)	.25
Z11.52-1952	★Oil Content of Paraffin Wax, Test for (ASTM D721-51T)	.25
Z11.53-1944 R1949	Conversion of Kinematic Viscosity to Saybolt Furol Viscosity, Method for (ASTM D666-44; API 548-44)	.25
Z11.54-1947	Ash Content of Petroleum Oils, Method of Test for (ASTM D482-46; API 549-46)	.25
Z11.56-1949	Chemical Analysis for Metals in Lubricating Oils, Methods of (ASTM D811-48)	.25
Z11.57-1949	Sulfated Residue, Lead, Iron, and Copper in New and Used Lubricating Oils, Methods of Test for (ASTM D810-48)	.25
Z11.58-1949	Sediment in Fuel Oil by Extraction, Method of Test for (ASTM D473-48)	.25
Z11.59-1952	★Neutralization Value (Acid and Base Numbers) by Electrometric Titration, Method of Test for (ASTM D664-52)	**In press**
Z11.60-1949	Oxidation Stability of Aviation Gasoline (Potential Gum Method), Method of Test for (ASTM D873-49)	.25
Z11.61-1949	Congealing Point of Pharmaceutical Petrolatums, Method of Test for (ASTM D938-49)	.25
Z11.62-1949	Measurement of Density of Hydrocarbon Liquids by the Pycnometer, Method for (ASTM D941-49)	.25
Z11.63-1949	Oxidation Stability of Gasoline (Induction Period Method), Method of Test for (ASTM D525-49)	.25
Z11.64-1950	Interfacial Tension of Oil Against Water by the Ring Method, Test for (ASTM D971-50)	.25
Z11.65-1950	Oxidation Stability of Lubricating Greases by the Oxygen Bomb Method, Test for (ASTM D942-50)	.25
Z11.66-1950	Determination of Butadiene Content of Polymerization Grade Butadiene (ASTM D973-50)	.25
Z11.67-1952	★Saponification Number of Petroleum Products by Potentiometric Titration, Test for (ASTM D939-52)	.25
Z11.68-1951	Sulfated Residue from New Lubricating Oils, Test for (ASTM D874-51)	.25
Z11.69-1951	Knock Characteristics of Motor Fuels by the Research Method, Test for (ASTM D908-51)	.25
Z11.70-1951	Benzene and Toluene by Ultra-Violet Spectrophotometry, Test for (ASTM D1017-51)	.25
Z11.71-1951	Olefinic Plus Aromatic Hydro-carbons in Petroleum, Test for (ASTM D1019-51)	.25
Z11.72-1951	Apparent Viscosity of Lubricating Greases, Test for (ASTM D1092-51)	.25
Z11.73-1951	Sodium in Lubricating Oils and Lubricating Oil Additives, Test for (ASTM D1026-51)	.25
Z11.74-1952	★Acetylene in Polymerization Grade Butadiene by Silver Nitrate Method, Test for (ASTM D1020-52)	**In press**
Z11.75-1952	★Separation of Residue from Butadiene, Test for (ASTM D1023-52)	**In press**
Z11.76-1952	★Nonvolatile Residue of Polymerization Grade Butadiene, Test for (ASTM D1025-52)	**In press**
Z11.77-1952	★Acidity of Residue from Distillation of Gasoline and of Petroleum Solvents, Test for (ASTM D1093-52)	**In press**

Z12 Dust Explosions:

Bound volume $3.00 (parts also sold separately)

		Price
Z12.1-1946	Pulverized-Coal Systems, Safety Code for the Installation and Operation of (NFPA 60A)	.35
Z12.2-1944	Starch Factories, Safety Code for the Prevention of Dust Explosions in (NFPA 61A)	.25
Z12.3-1953	★Flour and Feed Mills, Safety Code for the Prevention of Dust Explosions in (NFPA 61C)	.35
Z12.4-1953	★Terminal Grain Elevators, Safety Code for the Prevention of Dust Explosions in (NFPA 61B)	.35
Z12.5-1953	★Woodworking Plants, Safety Code for the Prevention of Dust Explosions in (NFPA 663)	.25
Z12.6-1953	★Sugar and Cocoa, Safety Code for Pulverizing Systems for (NFPA 62)	.25
Z12.7-1953	★Coal Pneumatic Cleaning Plants, Safety Code for the Prevention of Dust Explosions in (NFPA 653)	.25
Z12.8-1946	Wood Flour Manufacturing Establishments, Safety Code for the Prevention of Dust Explosions in (NFPA 662)	.25
Z12.9-1953	★Spice Grinding Plants, Safety Code for the Prevention of Dust Ignitions in (NFPA 656)	.25

		Price
Z12.10-1943	Inert Gas for Fire and Explosion Prevention, Safety Code for the Use of (NFPA 12A)	.25
Z12.11-1953	★Aluminum Bronze Powder, Safety Code for the Prevention of Dust Explosions in the Manufacture of NFPA 651)	.25
Z12.12-1950	Sulphur Dust Explosions and Fires, Safety Code for the Prevention of (NFPA 655)	.25
Z12.13-1953	★Country Grain Elevators, Code for the Prevention of Dust Ignitions in (NFPA 64)	.25
Z12.14-1943	Grain Elevators and Storage Units, Suggested Good Practices for the Application of Suction and Venting for the Control of Dust in (NFPA 661)	.25
Z12.15-1953	★Magnesium Powder or Dust, Code for Explosion and Fire Protection in Plants Producing or Handling (NFPA 652)	.25
Z12.16-1946	Plastics Industry, Safety Code for the Prevention of Dust Explosions in the (NFPA 654)	.35
Z12.17-1946	Pulverized Fuel Systems, Safety Code for the Installation of (NFPA 60)	.50
Z12.18-1953	★Confectionery Plants, Safety Code for the Prevention of Dust Explosions in (NFPA 657)	.25
Z14.1-1946	Drawings and Drafting Room Practice	1.50
Z15.1-1932 R1947	Engineering and Scientific Charts for Lantern Slides	.60
Z15.2-1938 R1947	Time-Series Charts, Manual of Design and Construction	1.50
Z15.3-1943 R1947	Engineering and Scientific Graphs for Publications	.90
Z16.1-1945	†Method of Compiling Industrial Injury Rates	.35
Z16.2-1941	†Compiling Industrial Accident Causes Part 1—Selection of Accident Factors Part 2—Detailed Classification of Accident Factors	1.25
Z17.1-1936 R1951	†Preferred Numbers	.50
Z20.3-1950	Places of Outdoor Assembly (Grandstands and Tents) (NFPA 102)	.25

Z21 Gas-Burning Appliances, Approval and Installation Requirements:

Z21.1-1952	★Domestic Gas Ranges, Approval Requirements for	2.00
Z21.2-1949 R1952	Gas Hose for Portable Gas Appliances, Listing Requirements on	1.00
Z21.3-1940	Hotel and Restaurant Ranges and Unit Broilers, Approval Requirements for, with Addenda Z21.3a-1946 (Z21.3a-1946 sold separately 40¢)	1.40
Z21.5-1940 R1947	Clothes Dryers, Approval Requirements for	**Under revision**
Z21.6-1949 R1952	Domestic Gas-Fired Incinerators, Approval Requirements for	1.50
Z21.8-1948 R1952	Installation of Domestic Gas Conversion Burners, Requirements for	1.00
Z21.9-1948 R1952	Hot Plates and Laundry Stoves, Approval Requirements for, with Addenda Z21.9a-1949 (Z21.9a-1949 sold separately 40¢)	1.40
Z21.10-1950	Gas Water Heaters, Approval Requirements for, with Addenda Z21.10a-1951 and Z21.10b-1952 (Z21.10a-1951 sold separately 25¢; ★Z21.10b-1952 sold separately 25¢)	2.50
Z21.11-1949	Gas-Fired Room Heaters, Approval Requirements for, with Addenda Z21.11a-1950 (Z21.11a-1950 sold separately 40¢)	2.40
Z21.12-1937 R1950	Draft Hoods, Listing Requirements for	.50

Z21.13 Central Heating Gas Appliances, Approval Requirements for:

Z21.13.1-1951	Steam and Hot Water Boilers, Volume I	2.00
Z21.13.2-1951	Gravity and Forced Air Central Furnaces, Volume II, with addenda Z21.13.2a-1952 (★Z21.13.2a-1952 sold separately 50¢	2.50
Z21.13.3-1951	Gravity and Fan Type Floor Furnaces, Volume III	2.00
Z21.13.4-1951	Gravity and Fan Type Vented Recessed Heaters, Volume IV	2.00
Z21.15-1944 R1952	Gas Valves, Listing Requirements for, with Addenda Z21.15a-1949 (Z21.15a-1949 sold separately 20¢)	.70
Z21.16-1951	Gas Unit Heaters, Approval Requirements for	1.50
Z21.17-1948 R1952	Domestic Gas Conversion Burners, Listing Requirements for	2.00
Z21.18-1934	Domestic Gas Appliance Pressure Regulators, Listing Requirements for	**Under revision**
Z21.19-1942 R1950	Refrigerators Using Gas Fuel, Approval Requirements for	1.00
Z21.20-1951	Automatic Pilots, Listing Requirements for	1.00
Z21.21-1952	★Automatic Valves for Gas Appliances, Listing Requirements for	1.00
Z21.22-1935 R1950	Relief and Automatic Gas Shut-off Valves for Use on Water Heating Systems, Listing Requirements for	.40
Z21.23-1940 R1950	Gas Appliance Thermostats, Listing Requirements for	.50
Z21.24-1941 R1947	Semi-Rigid Gas Appliance Tubing and Fittings, Listing Requirements for	.50
Z21.26-1941 R1950	Attachable Gas Water Heating Units, Listing Requirements for	**Out of print**
Z21.27-1940	Hotel and Restaurant Deep Fat Fryers, Approval Requirements for, with Addenda Z21.27a-1946 (Z21.27a-1946 sold separately 40¢)	1.40
Z21.28-1948	Portable Gas Baking and Roasting Ovens, Approval Requirements for	2.00
Z21.29-1941 R1950	Furnace Temperature Limit Controls and Fan Controls, Listing Requirements for	.50
Z21.30-1950	Installation of Gas Piping and Gas Appliances in Buildings (Not Applicable to Undiluted Liquefied Petroleum Gas)	.25
Z21.31-1941 R1947	Gas Counter Appliances, Approval Requirements for	**Under revision**
Z21.32-1942 R1950	Gas Appliance Connectors of Flexible Metal Tubing and Fittings, Listing Requirements for	.50
Z21.33-1950	Installation of Gas-Burning Equipment in Power Boilers, Requirements for	1.00
Z21.34-1942 R1950	Gas-Fired Duct Furnaces, Approval Requirements for	**Under revision**
Z21.35-1945 R1950	Gum Protective Devices, Listing Requirements for	.50
Z21.37-1948 R1952	Dual Oven Type Combination Gas Ranges, Approval Requirements for	1.00
Z21.38-1953	★Installation of Gas Conversion Burners in Domestic Ranges, Requirements for	.25
Z21.39-1953	★Gas Conversion Burners for Domestic Ranges, Listing Requirements for	2.00

Z22 Motion Pictures—See PH22

Z23.1-1939 R1950	Sieves for Testing Purposes, Specifications for (ASTM E11-39; AASHO M92-42)	.25
Z24.1-1951	†Acoustical Terminology	1.50
Z24.2-1942	†Noise Measurement	.50
Z24.3-1944	†Sound Level Meters for Measurement of Noise and Other Sounds	.50
Z24.4-1949	†Pressure Calibration of Laboratory Standard Pressure Microphones, Method for the	.75
Z24.5-1951	†Audiometers for General Diagnostic Purposes	.50
Z24.7-1950	†Apparatus Noise Measurement, Test Code for	.50
Z24.8-1949	†Laboratory Standard Pressure Microphones, Specification for	.50
Z24.9-1949	†Coupler Calibration of Earphones, Method for the	.75
Z24.10-1953	★†Octave-Band Filter Set for the Analysis of Noise and Other Sounds, Specification for an	.50
Z24.12-1952	★†Pure-Tone Audiometers for Screening Purposes, Specification for	.50
Z24.14-1953	★†Measurement of Characteristics of Hearing Aids, Method for	.50
Z25.1-1940 R1947	†Rules for Rounding Off Numerical Values	.35
Z26.1-1950	†Safety Glazing Materials for Glazing Motor Vehicles Operating on Land Highways, Safety Code for	1.00
Z30.2-1953	★Thermal Analysis of Steel (ASTM E14-51T)	**In press**
Z31-1933	Marking of Gold Filled and Rolled Gold Plate Articles Other Than Watchcases (CS47-34)	**Out of print**

Z32 Graphical Symbols (see also Z10 and Y32):

Z32.2.1-1949	Welding, Graphical Symbols for	.50
Z32.2.2-1949	Plumbing, Graphical Symbols for	.50
Z32.2.3-1949	Pipe Fittings, Valves, and Piping, Graphical Symbols for	.50
Z32.2.4-1949	Heating, Ventilating, and Air Conditioning, Graphical Symbols for	.50
Z32.2.5-1950	Railroad Use, Graphical Symbols for	.75
Z32.2.6-1950	Heat-Power Apparatus, Graphical Symbols for	.50
Z32.3-1946	†Electric Power and Control, Graphical Symbols for	1.00
Z32.5-1944	†Telephone, Telegraph and Radio Use, Graphical Symbols for	.80
Z32.9-1943	**Redesignated Y32.9-1943**	
Z32.10-1948	Electron Devices, Graphical Symbols for	**Under revision—Out of print**
Z32.12-1947	Electric Apparatus, Basic Graphical Symbols for	.60
Z32.13-1950	†Abbreviations for Use on Drawings	1.00
Z33.1-1950	Regulations for the Installation of Blower and Exhaust Systems for Dust, Stock and Vapor Removal (NFPA 91; NBFU 91)	.25
Z34.1-1947	†Practice for Certification Procedures	.35
Z35.1-1941 R1945	†Industrial Accident Prevention Signs, Specifications for	.75

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Z37 Allowable Concentrations of Toxic Dusts and Gases: (Special price of series, $4.00)		
Z37.1-1941	†Carbon Monoxide, Allowable Concentration of	.35
Z37.2-1941	†Hydrogen Sulfide, Allowable Concentration of	.35
Z37.3-1941	†Carbon Disulfide, Allowable Concentration of	.35
Z37.4-1941	†Benzene, Allowable Concentration of	.35
Z37.6-1948	†Manganese, Allowable Concentration of	.35
Z37.7-1943	†Chromic Acid and Chromates, Allowable Concentration of	.35
Z37.8-1943	†Mercury, Allowable Concentration of	.35
Z37.10-1948	†Xylene, Allowable Concentration of	.35
Z37.11-1943	†Lead and Certain of Its Inorganic Compounds, Allowable Concentration of	.35
Z37.12-1943	†Toluene, Allowable Concentration of	.35
Z37.13-1944	†Oxides of Nitrogen, Allowable Concentration of	.35
Z37.14-1944	†Methanol, Allowable Concentration of	.35
Z37.16-1944	†Formaldehyde, Allowable Concentration of	.35
Z37.18-1949	†Methyl Chloride, Allowable Concentration of	.35
Z37.19-1946	†Trichloroethylene, Allowable Concentration of	.35
Z38 Photography (other than Cinematography)—See PH1, PH2, PH3 and PH4		
Z39.1-1943	†Reference Data and Arrangement of Periodicals	.25
Z41 Specifications for Protective Occupational Footwear: (American War Standards)		
Z41.1-1944	†Men's Safety-Toe Shoes	.75
Z41.3-1944	†Men's Conductive Shoes	
Z41.4-1944	†Men's Explosives - Operations (Nonsparking) Shoes	
Z41.5-1944	†Men's Electrical-Hazards Shoes	
Z41.6-1944	†Men's Foundry (Molders) Shoes	
Z41.2-1944	†Women's Safety-Toe (Oxford) Shoes	Out of print
Z41.7-1944	†Women's Safety-Toe (High) Shoes	
Z41.8-1944	†Women's Explosives-Operations (Nonsparking) Shoes	
Z41.9-1944	†Women's Conductive Shoes	
Z43-1941	†Grinding, Polishing and Buffing Equipment Sanitation	.75
Z48.1-1942	†Marking Compressed Gas Cylinders to Identify Content, Method of	.25
Z49.1-1950	Electric and Gas Welding and Cutting Operations, Safety in	.50
Z50.1-1947	†Bakery Equipment, Safety Code for	1.00
Z52 Photography and Cinematography—See PH		
Z53.1-1945	†Marking Physical Hazards and the Identification of Certain Equipment, Safety Color Code for (American War Standard)	.35
Z54.1-1946	†Industrial Use of X-Rays, Safety Code for the (American War Standard)	1.50
Z55.1-1950	†Gray Finishes for Industrial Apparatus and Equipment	.35
	Color Chips representing Gray Finishes according to Z55.1-1950	$2.25
Z58.1.1-1953	★Nomenclature for Radiometry and Photometry	In press
Z58.1.2-1952	†Colorimetry, Nomenclature and Definitions in the Field of	.50
Z58.7.1-1951	†Spectrophotometric Measurement for Color, Method of	.50
Z58.7.2-1951	†Determination of Color Specifications, Method for	
Z58.7.3-1951	†Expressing Color Specifications, Alternative Methods for	
Z60.1-1952	★Horticultural Standards — Nursery Stock	.50
Z61.1-1949	†Home Cooking and Baking Utensils, Dimensions, Tolerances, and Terminology for	.35
Z68.1-1953	★Colorific Value of Gaseous Fuels by Water Flow Colorimeter, Method of Test for (ASTM D900-48)	In press
Z69.1-1953	★Specific Gravity of Gaseous Fuels, Method of Test for (ASTM D1070-52)	In press

Z63 A Glossary of Terms in Nuclear Science and Technology (Proposed American Standard; published for trial and criticism)

This Glossary consists of the following nine sections with each listing terms peculiar to its field, those used in the field with a different sense or with different emphasis from what is most commonly understood in other connections, and terms used elsewhere in the same way but so infrequently as to be unfamiliar. Each section also includes an alphabetical listing of the terms of all sections to enable users to determine in which sections their definitions will be found. Sections VIII and IX are published under one cover. All others are available separately.

*I	General Terms	$1.00
II	Reactor Theory	$1.50
III	Reactor Engineering	$ .75
IV	Chemistry	$ .60
V	Chemical Engineering	$ .60
VI	Biophysics and Radiobiology	$ .60
VII	Instrumentation	$1.00
VIII	Isotopes Separation	$1.20
IX	Metallurgy	

*Expected to be available by Summer of 1953.

CS — Commercial Standards

The following Commercial Standards, promulgated by the National Bureau of Standards, have been approved by ASA.

CS8-41	Gage Blanks (American Standard B47.1-1941)	Under revision
CS19-32	Foundry Patterns of Wood (American Standard B45.1-1932)	Out of print
CS47-34	Marking of Gold Filled and Rolled Gold Plate Articles Other Than Watchcases (American Standard Z31-1933)	.05
CS49-34	Chip Board, Laminated Chip Board, and Miscellaneous Boards for Bookbinding Purposes	Out of print
CS50-34	Binders Board	.05
CS51-35	Marking Articles Made of Silver in Combination with Gold	.05
CS53-35	Colors and Finishes for Cast Stone	.05
CS54-35	Mattresses for Hospitals	.05
CS55-35	Mattresses for Institutions	Out of print
CS57-40	Book Cloths, Buckrams and Impregnated Fabrics for Bookbinding Purposes except Library Bindings	.05
CS67-38	Marking Articles Made of Karat Gold	Out of print
CS99-42	Gas Floor Furnaces (Gravity Circulating Type)	.05

NOTE: Minimum charge on any purchase is $0.25.

American Safety Standards

(Special Price of Complete Set, $45.00)

(These are also included in the preceding general list)

		Price
A2.1-1942	Fire Tests of Building Construction and Materials, Methods of (ASTM E119-41)	Under revision
A2.2-1942	Fire Tests of Door Assemblies, Methods of (ASTM E152-41)	.25
A9.1-1953	★Building Exits Code (NFPA 101; AIA 40-B-7)	1.00
A10.1-1951	Manual of Accident Prevention in Construction	3.00
A10.2-1944	†Building Construction, Safety Code for	1.75
A11.1-1952	★Industrial Lighting	.50
A12-1932	†Floor and Wall Openings, Railings and Toe Boards, Safety Code for	.50
A13-1928	Identification of Piping Systems, Scheme for the	.60
A14.1-1952	★†Portable Wood Ladders, Safety Code for	.75
A17.1-1937	Elevators, Dumbwaiters, and Escalators, Safety Code for, with Supplement A17.3-1942	1.50
A17.2-1945	Elevators, Inspection of (Inspectors' Manual)	1.50
A23.1-1948	School Lighting (AIA 31-F-28)	.50
A39-1933	†Window Cleaning	Under revision—Out of print
A85-1942	†Protective Lighting for Industrial Properties (American War Standard)	Out of print
A90.1-1949	Manlifts, Safety Code for	.55
B7.1-1947	Use, Care, and Protection of Abrasive Wheels, Safety Code for	.75
B8-1932	†Protection of Industrial Workers in Foundries, Safety Code for	.35
B9.1-1950	Mechanical Refrigeration, Safety Code for (ASRE Circular 15-R)	1.00
B11.1-1948	†Power Presses and Foot and Hand Presses, Safety Code for	1.25
B13-1924	Logging and Sawmill Safety Code (NBS Handbook H5)	Out of print
B15.1-1953	Mechanical Power-Transmission Apparatus, Safety Code for	1.00
B19-1938	Compressed Air Machinery and Equipment, Safety Code for	.40
B20.1-1947	Conveyors, Cableways and Related Equipment, Safety Code for	.90
B24.1-1952	†Forging and Hot Metal Stamping, Safety Code for	1.00
B28.1-1949	†Mills and Calenders in the Rubber Industry, Safety Code for	1.00
B30.1-1943 R1952	Jacks, Safety Code for	.40
B30.2-1943 R1952	Cranes, Derricks, and Hoists, Safety Code for	1.80
B31.1-1951	Code for Pressure Piping, including Supplement B31.1a-1953, and B31.1.8-1952, Gas Transmission and Distribution Piping Systems (Section 8) (★B31.1a also sold separately $1.00) (★B31.1.8-1952 also sold separately $1.25)	5.25
B56.1-1950	Industrial Power Trucks, Safety Code for	.85
C1-1951	National Electrical Code (NBFU 70; 4 x 6¼ in.) (Paper bound NFPA 70; 4¼ x 7¼ in. ....$1.00) (Cloth bound NFPA 70; 6 x 9 in. ....$3.00)	.10

C2 National Electrical Safety Code (NBS Handbook H30), $1.75 (also parts sold separately)

C2.1-1941 R1947	Installation and Maintenance of Electrical Supply Stations, Safety Rules for the (NBS Handbook H31)	.10
C2.2-1941 R1947	Installation and Maintenance of Electric Supply and Communication Lines, Safety Rules for the (NBS Handbook H32)	.75
C2.3-1941 R1947	Installation and Maintenance of Electric Utilization Equipment, Safety Rules for the (NBS Handbook H33)	.20
C2.4-1939 R1947	Operation of Electric Equipment and Lines, Safety Rules for the (NBS Handbook H34)	.20
C2.5-1940 R1947	Radio Installations, Safety Rules for (NBS Handbook H35)	.15

C5 Protection against Lightning, Code for (NBS Handbook H46; NFPA 78):

C5.1-1953	Part I, Protection of Persons	.40
C5.2-1953	Part II, Protection of Buildings and Miscellaneous Property	
C5.3-1953	Part III, Protection of Structures Containing Flammable Liquids and Gases	
C74-1942	†Machine Tool Electrical Standards (American War Standard)	Out of print
D6.1-1948	Uniform Traffic Control Devices for Streets and Highways, Manual on	.75
D7.1-1941	†Inspection Requirements for Motor Vehicles	Under revision
D8.1-1951	Railroad Highway Grade Crossing Protection (AAR Bulletin 3)	.50
D10.1-1951	Adjustable Face Traffic Control Signal Head Standards (ITE Technical Report 1)	.50
D11.1-1943	Pre-Timed, Fixed Cycle, Traffic Signal Controllers (ITE Technical Report 2)	.50
D12.1-1953	★Street and Highway Lighting	In press
D13.1-1950	Traffic-Actuated, Traffic Signal Controllers and Detectors, Specifications for	.50

J6 Specifications for Rubber Protective Equipment for Electrical Workers:

J6.1-1950	Rubber Insulating Line Hose (ASTM D1050-49T)	.50
J6.2-1950	Rubber Insulator Hoods (ASTM D1049-49T)	
J6.4-1950	Rubber Insulating Blankets (ASTM D1048-49T)	
J6.5-1950	Rubber Insulating Sleeves (ASTM D1051-49T)	
J6.3-1945	†Leather Protective Gloves (American War Standard)	.25
J6.6-1952	Rubber Insulating Gloves, Specifications for (ASTM D120-52T)	.25
K13.1-1950	†Identification of Gas-Mask Canisters, Safety Code for	.35
L1.1-1947	†Textile Safety Code	.50

L18 Specifications for Protective Occupational (Safety) Clothing (American War Standards):

L18.1-1944	†Leather Aprons	.50
L18.2-1944	†Cape Sleeves and Bibs	
L18.3-1944	†Knee-Length Leggings	
L18.4-1944	†Leather Coats	.50
L18.5-1944	†Leather Overalls	
L18.6-1944	†Leather Sleeves	
L18.7-1944	†Welders' Leather Gauntlet Gloves	Under revision
L18.8-1944	†Protective Leather Gloves, Steel-Stapled	
L18.9-1944	†Asbestos Gloves	
L18.10-1944	†Asbestos Gloves, Leather Reinforced	
L18.11-1944	†Asbestos Mittens	
L18.12-1944	†Asbestos Mittens, Leather Reinforced	
L18.14-1944	†Asbestos Aprons (Bib Type)	.50
L18.15-1944	†Asbestos Cape Sleeves and Bibs	
L18.16-1944	†Asbestos Leggings (Knee and Hip Length)	
L18.17-1944	†Asbestos Coats	
L18.18-1945	†Leather One-Finger Mittens	.50
L18.19-1945	†Leather Mittens	
L18.20-1945	†Asbestos One-Finger Mittens	
L18.21-1945	†Flame-Resistant Fabric Aprons (Bib Type)	.50
L18.22-1945	†Flame-Resistant Fabric Leggings (Knee and Hip Length)	
L18.23-1945	†Flame-Resistant Fabric Coats	
L18.24-1945	†Flame-Resistant Fabric Pants	
L18.25-1945	†Flame-Resistant Fabric Coveralls	
L18.26-1945	†Flame-Resistant Fabric Spats	.50
L18.27-1945	†Leather Spats	
L18.28-1945	†Asbestos Spats	
L18.29-1945	†Chemical-Resistant Gloves	.35
M2.1-1951	Installing and Using Electrical Equipment in Coal Mines, Safety Rules for (BMTP 402)	.20
M11-1927	Wire Rope for Mines	Under revision—Out of print
M12.1-1946	†Construction and Maintenance of Ladders and Stairs for Mines	.35
M13-1925 R1942	†Rock-Dusting Coal Mines to Prevent Coal Dust Explosions	.25
M14-1930	†Explosives in Bituminous Coal Mines, Use of	.35
M15-1931	†Coal Mine Transportation, Safety Code for	.35
M17-1930	†Fire Fighting Equipment in Metal Mines	Gratis
M24-1932	†Installing and Using Electrical Equipment in Metal Mines, Safety Rules for	Gratis
O1.1-1944	†Woodworking Machinery, Safety Code for	.75
P1-1936	†Paper and Pulp Mills, Safety Code for	Under revision—Out of print
Z2-1938	Protection of Heads, Eyes and Respiratory Organs, Safety Code for (NBS Handbook H24)	Under revision—Out of print
Z4.1-1935	†Industrial Sanitation in Manufacturing Establishments, Safety Code for	.50
Z4.2-1942	†Drinking Fountains, Specifications for	.25
Z4.3-1935	Sanitary Privy (Supplement 108 to the Public Health Reports)	Under revision—Out of print

NOTE: Minimum charge on any purchase is $0.25.

NOTE: Minimum charge on any purchase is $0.25.

		Price
Z8-1941	†Laundry Machinery and Operations, Safety Code for	.35
Z9	†Fundamentals Relating to the Design and Operation of Exhaust Systems (Report published for comment)	Out of print
Z9.1-1951	†Ventilation and Safe Operation of Open-Surface Tanks	.75

Z12 Dust Explosions:
Bound volume $3.00 (parts also sold separately)

Z12.1-1946	Pulverized-Coal Systems, Safety Code for the Installation and Operation of (NFPA 60A)	.35
Z12.2-1944	Starch Factories, Safety Code for the Prevention of Dust Explosions in (NFPA 61A)	.25
Z12.3-1953	★Flour and Feed Mills, Safety Code for the Prevention of Dust Explosions in (NFPA 61C)	.35
Z12.4-1953	★Terminal Grain Elevators, Safety Code for the Prevention of Dust Explosions in (NFPA 61B)	.35
Z12.5-1953	★Woodworking Plants, Safety Code for the Prevention of Dust Explosions in (NFPA 663)	.25
Z12.6-1953	★Sugar and Cocoa, Safety Code for Pulverizing Systems for (NFPA 62)	.25
Z12.7-1953	★Coal Pneumatic Cleaning Plants, Safety Code for the Prevention of Dust Explosions in (NFPA 653)	.25
Z12.8-1946	Wood Flour Manufacturing Establishments, Safety Code for the Prevention of Dust Explosions in (NFPA 662)	.25
Z12.9-1953	★Spice Grinding Plants, Safety Code for the Prevention of Dust Ignitions in (NFPA 656)	.25
Z12.10-1943	Inert Gas for Fire and Explosion Prevention, Safety Code for the Use of (NFPA 12A)	.25
Z12.11-1953	★Aluminum Bronze Powder, Safety Code for the Prevention of Dust Explosions in the Manufacture of (NFPA 651)	.25
Z12.12-1950	Sulphur Dust Explosions and Fires, Safety Code for the Prevention of (NFPA 655)	.25
Z12.13-1953	★Country Grain Elevators, Code for the Prevention of Dust Ignitions in (NFPA 64)	.25
Z12.14-1943	Grain Elevators and Storage Units, Suggested Good Practices for the Application of Suction and Venting for the Control of Dust in (NFPA 661)	.25
Z12.15-1953	★Magnesium Powder or Dust, Code for Explosion and Fire Protection in Plants Producing or Handling (NFPA 652)	.25
Z12.16-1946	Plastics Industry, Safety Code for the Prevention of Dust Explosions in the (NFPA 654)	.35
Z12.17-1946	Pulverized Fuel Systems, Safety Code for the Installation of (NFPA 60)	.50
Z12.18-1953	★Confectionery Plants, Safety Code for the Prevention of Dust Explosions in (NFPA 657)	.25
Z16.1-1945	†Method of Compiling Industrial Injury Rates	.35
Z16.2-1941	†Compiling Industrial Accident Causes Part 1—Selection of Accident Factors Part 2—Detailed Classification of Accident Factors	1.25
Z20.3-1950	Places of Outdoor Assembly, Grandstands and Tents (NFPA 102)	.25
Z21.30-1950	Installation of Gas Piping and Gas Appliances in Buildings (Not Applicable to Undiluted Liquefied Petroleum Gas)	.25
Z26.1-1950	†Safety Glazing Materials for Glazing Motor Vehicles Operating on Land Highways, Safety Code for	1.00
Z33.1-1950	Regulations for the Installation of Blower and Exhaust Systems for Dust, Stock and Vapor Removal (NFPA 91; NBFU 91)	.25
Z35.1-1941 R1945	†Industrial Accident Prevention Signs, Specifications for	.75

Z37 Allowable Concentrations of Toxic Dusts and Gases:

Z37.1-1941	†Carbon Monoxide, Allowable Concentration of	.35
Z37.2-1941	†Hydrogen Sulfide, Allowable Concentration of	.35
Z37.3-1941	†Carbon Disulfide, Allowable Concentration of	.35
Z37.4-1941	†Benzene, Allowable Concentration of	.35
Z37.6-1948	†Manganese, Allowable Concentration of	.35
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Z37.12-1943	†Toluene, Allowable Concentration of	.35
Z37.13-1944	†Oxides of Nitrogen, Allowable Concentration of	.35
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Z37.16-1944	†Formaldehyde, Allowable Concentration of	.35
Z37.18-1949	†Methyl Chloride, Allowable Concentration of	.35
Z37.19-1946	†Trichloroethylene, Allowable Concentration of	.35

Z41 Specifications for Protective Occupational Footwear: (American War Standards)

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Z41.2.1944 Z41.7-1944 Z41.8-1944 Z41.9-1944	†Women's Safety-Toe (Oxford) Shoes †Women's Safety-Toe (High) Shoes †Women's Explosives - Operations (Non-sparking) Shoes †Women's Conductive Shoes	Out of print
Z43-1941	†Grinding, Polishing and Buffing Equipment Sanitation	.75
Z48.1-1942	†Marking Compressed Gas Cylinders to Identify Content, Method of	.25
Z49.1-1950	Electric and Gas Welding and Cutting Operations, Safety in	.50
Z50.1-1947	†Bakery Equipment, Safety Code for	1.00
Z53.1-1945	†Marking Physical Hazards and the Identification of Certain Equipment, Safety Color Code for (American War Standard)	.35
Z54.1-1946	†Industrial Use of X-Rays, Safety Code for the (American War Standard)	1.50

ASA Special Publications

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The manual serves as a guide in the preparation and publication of American Standards, codifying the editorial practices used in published standards. The principal sections include outline form and numbering; capitalization; spelling; abbreviations for technical terms; use of italics; basic rules for tables and illustrations; standard bibliographical style; and general format (with illustrations).

Z56 Nationally Recognized Standards in State Laws and Local Ordinances $1.00

This 44-page report of the ASA Committee Z56 on Model Laws and Ordinances has been published by the ASA to get ideas and discussion on the question, "How can nationally recognized standards legally be used in state laws and local ordinances?" It points out how lack of uniformity in state and local technical requirements increases costs and reduces public safety; analyzes the need for legal methods to permit widespread use of nationally recognized standards to bring outmoded requirements up to date with new technical developments; summarizes the present status of the "adoption by reference" method; and discusses the method of making compliance with national standards *prima facie* evidence of compliance with the law.

Dollar Savings Through Standards.....$1.00

This 32-page document is a report of a survey made through the American Standards Association for the Economic Cooperation Administration to obtain data on savings derived from the use of standards by American industry. Companies representing 81 industries and industrial products have contributed detailed reports.

Specials Can Be Licked. By H. Thomas Hallowell, Jr

per hundred $5.00
per copy ..... .25

This breezy and entertaining story tells how one company increased profits and cut losses by actively promoting the use of standards. Reprinted from STANDARDIZATION, July 1952.

How to Check Quality of Surface Finish.....$ .50

What does "roughness" mean? What grade of finish is suitable for your job? How are surface finish comparison specimens used? How does the "gold standard" surface specimen differ from regular standard specimens? In this reprint three outstanding experts answer these questions and tell the "why" and the "how" of the American Standards on surface roughness, B46.1-1947 and B46.2-1952. The articles are "The 'Why' of the Surface Finish Standards," by James A. Broadston; "The Use of Standard Roughness Comparison Specimens," by Donald E. Williamson; "The 'Gold Standard' Precision Specimens of Surface Roughness," by C. R. Lewis. Reprinted from STANDARDIZATION, August 1952.

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